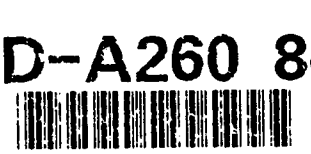

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Monterey, California

THESIS

FISCAL OVERSIGHT OF DEFENSE DEPARTMENT
ENVIRONMENTAL CLEANUP
AND COMPLIANCE ACTIVITY, FISCAL YEARS 1984-1993

by

Kurt Lance Kunkel

December, 1992

Thesis Advisor: Richard B. Doyle

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This thesis investigates the legislative and fiscal oversight role the Congress has played in directing and funding Department of Defense environmental cleanup and compliance efforts for fiscal years 1984 through 1993. Congressional funding profiles of the Operations and Maintenance, Research, Development, Test and Evaluation, and Military Construction Appropriations are provided for the areas of environmental restoration, research and development, and base closure, respectively. The study reveals that DoD environmental cleanup funding has risen dramatically during the 1990s following a period of relatively moderate growth in the 1980s. The research indicates an evolution in congressional oversight of defense environmental funding from appropriations review to emphasis on specific activities, reflecting a shift in national security priorities. The research concludes that widening responsibilities, continued base closures, and legal considerations will continue to place pressure on DoD's ability to contain environmental cost growth.

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Fiscal Oversight of Defense Department
Environmental Cleanup
and Compliance Activity, Fiscal Years 1984-1993

by

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ABSTRACT

This thesis investigates the legislative and fiscal oversight role the Congress has played in directing and funding Department of Defense environmental cleanup and compliance efforts for fiscal years 1984 through 1993. Congressional funding profiles of the Operations and Maintenance, Research, Development, Test and Evaluation, and Military Construction Appropriations are provided for the areas of environmental restoration, research and development, and base closure cleanup, respectively. The study reveals that DoD environmental cleanup funding has risen dramatically during the 1990s following a period of relatively moderate funding growth in the 1980s. The research indicates an evolution in congressional oversight of defense environmental funding from appropriation review to emphasis on specific activities, reflecting a shift in national security priorities. The research concludes that widening responsibilities, continued base closures, and legal considerations will continue to place pressure on DoD's ability to contain environmental cost growth.

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I. INTRODUCTION

> The head of each Executive agency is responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal Facilities and activities under the control of the agency.
> - Section 1-101, Executive Order 12088

With these words, President Jimmy Carter, in October 1978, set in motion events which have since altered the operations of each department in the Executive Branch, in particular those of the Department of Defense (DoD). Thrust to the forefront of federal installation environmental cleanup and regulatory compliance as a result of its size, DoD now finds itself both proactively and reactively responding to congressional environmental policy and regulation.

For years the Department of Defense's focus on winning the Cold War relegated its environmental efforts to a position of disinterest. The Defense Department concentrated its efforts on strategic and conventional force improvements, often at the expense of the very environment in which these same forces were assigned to operate.

President Carter's Executive Order 12088 forced each department in the Executive Branch to address and comply with a series of statutory requirements enacted by the Congress. These requirements were an outgrowth of the environmental awareness era of the 1970s. It is through this legislative

process that the Congress has exerted fiscal and regulatory oversight of the Defense Department's environmental cleanup, restoration, and compliance activity.

A. AREA OF RESEARCH AND RESEARCH QUESTIONS

This thesis will investigate the legislative and fiscal oversight role Congress has played in directing and funding Department of Defense environmental cleanup, regulatory compliance, and contaminated site restoration efforts for fiscal years 1984 through 1992. The questions addressed by this research include: What is the scope and magnitude of the environmental cleanup, site restoration, and compliance facing DoD today? What legislative action has Congress taken targeting DoD environmental cleanup, site restoration and regulatory compliance? What is the profile of the DoD budget associated with environmental cleanup and legislative compliance? What are the implications for future DoD budgets as a result of expanding environmental requirements?

B. SCOPE AND METHODOLOGY

This research will examine the role of Congress in directing defense environmental cleanup and compliance for fiscal years 1984 through 1992 by focusing on the congressional budget process. Internal structural changes mandated by Congress and implemented by the Defense Department in response to this budgeting process will be reviewed.

Additional attention will be given to DoD environmental action in response to base realignment and closure requirements. An examination of Defense Department funding requirements for environmental cleanup and compliance will be limited to funding provided after fiscal year 1983.

This thesis utilizes historical data to identify congressional interest and action concerning DoD environmental funding and responsibilities. Data obtained from congressional legislative reports is used to identify the structural and programmatic changes in the Defense Department which have been legislated by the Congress. Specific funding data from the DoD Comptroller's office as well as House and Senate authorization and appropriation committee reports are used to display a funding profile of environmental cleanup and compliance funding over the past decade.

C. BACKGROUND

The size of the Defense Department's environmental cleanup and compliance responsibilities is enormous by any standard. The Department of Defense holds environmental stewardship over 25 million acres of land, an area approximately the size of the State of Kentucky. The U. S. Army Corps of Engineers directs the usage of an additional 12 million acres of land through its civil works programs. [Ref. 1]

Furthermore, by the end of fiscal year 1990, the Defense Department had identified hazardous waste, stored or disposed

of improperly, at virtually every United States military installation in every state. This congressionally mandated identification process encompasses over 17,400 sites at over 1,800 military installations. [Ref. 2]

One of these installations, the U. S. Army's Jefferson Proving Ground in Madison, Indiana, is an extreme example of the seriousness and size of DoD's problem. An area larger than Washington, D. C. and Manhattan combined, the 100 square mile Jefferson Proving Ground remains one of DoD's Cold War legacies. With only 2,000 of the site's 55,000 acres classified as uncontaminated, current estimates project that a total installation-wide cleanup would exceed $13 billion dollars. Even a limited cleanup of unexploded ordnance and hazardous waste could approach $5 billion dollars while still leaving the installation unsafe for unrestricted human use. [Ref. 3]

Beyond the sites already identified, current operations and maintenance practices are causing continued environmental concerns for DoD. By one estimate, the Defense Department's vast industrial activities produce in excess of a ton of toxic waste every minute, an amount that is greater than that produced by the top five United States chemical companies combined. [Ref. 3]

The level of effort demonstrated by the Department of Defense to address these and many other environmental issues is directly related to the environmental interest expressed by

Congress through the congressional budget and oversight process. In the House of Representatives, four committees maintain jurisdiction over the Defense Department's environmental actions; in the Senate three committees currently oversee various aspects of DoD's environmental efforts.

The number of congressional committees and subcommittees holding environmental oversight has presented the Defense Department with a daunting task. The Department of Defense is forced not just to seek funding approval for the operation, procurement, research and development, and manning of its forces and weapons systems, but also to ensure that a wide variety of environmental programs survive the same authorization and appropriation process. Defense Department planners are now making tradeoffs between competing weapon systems and associated personnel levels in addition to adjusting to congressional initiatives to ensure DoD compliance with environmental statutes. Beyond these crucial tradeoffs, DoD must now also decide the funding method and extent to which it will attempt to comply with congressional environmental programs.

With planned budget authority for environmental programs for Fiscal Year 1993 in excess of $3.7 billion dollars [Ref. 4], funding for Department of Defense environmental cleanup, contaminated site restoration, and regulatory compliance efforts can be found in several areas of the

overall defense budget. Funding for defense environmental cleanup and compliance is incorporated in the Operations and Maintenance (O&M), Military Construction (MILCON), and Research, Development, Test and Evaluation (RDT&E) appropriations. In addition to the environmental cleanup and compliance funding of field activities through each military service's O&M appropriation, Congress provides additional funding in the area of operations and maintenance through an appropriation titled "Environmental Restoration, Defense". This appropriation funds a transfer account known as the Defense Environmental Restoration Account (DERA).[1] DERA is used for installation restoration of military bases and activities including sites specifically designated by Congress.

Congress utilizes the Military Construction appropriation to fund the environmental cleanup of bases designated for closure or realignment. Through this appropriation, a portion of an account identified as the "Base Closure Account" is used exclusively as the source of funds for environmental restoration activity at closing or realigning military installations [Ref. 5]. Furthermore, military bases and activities earmarked for closure or realignment that also

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[1]Appendix A lists all applicable acronyms used in this research.

contain Environmental Protection Agency (EPA) recognized Superfund sites may have access to Superfund dollars.[2]

Congress has not limited itself to fiscal oversight of the defense environmental budget, however. In excess of thirty-eight different federal statutes currently govern military environmental activity. As shown in Figure 1, the scope of

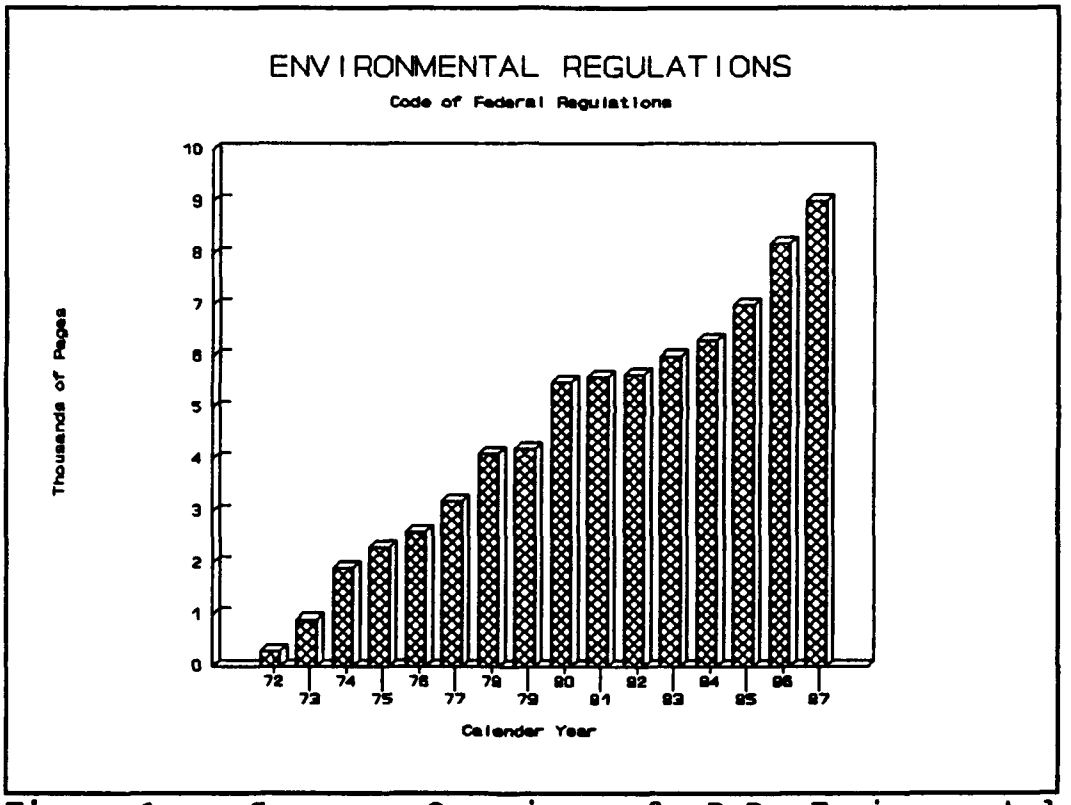

Figure 1 Source: Overview of DoD Environmental Activities, House Armed Services Committee, Report No. 101-27, p. 16.

federal environmental regulation has expanded dramatically. This increase in complexity is not without a cost to DoD.

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[2]The Superfund site designation process is detailed in Chapter II.

Unit commanders are under increasing pressure to devote scarce operating dollars to fund the disposal of currently generated hazardous waste, while simultaneously funding programs to comply with the growing list of federal, state, and local environmental statutes.

In addition, measures taken by the Base Realignment and Closure Commission and approved by Congress to suspend or realign operations at over a hundred contaminated military installations must be addressed by current and future defense budgets. As the Defense Department continues to shrink both in number of operational bases and as a percentage of total federal outlays, funding for and oversight of defense environmental restoration at contaminated base closure sites will continue to expand.

It is from this regulatory and funding aspect that this thesis will provide evidence that the Department of Defense faces continued difficulty in its efforts to budget for environmental cleanup and compliance. As DoD's overall budget authority continues to decline through the remainder of this decade, Congress is likely to continue to exert pressure on DoD to play a much larger role in environmental compliance and cleanup. The Defense Department's role will be to solve its environmental problems in the most cost beneficial manner while also achieving the objectives stipulated in federal law.

D. BENEFITS OF RESEARCH

The purpose of this research is to identify the issues and actions of the Defense Department's environmental cleanup, site restoration, and regulatory compliance effort as a consequence of congressional legislative and fiscal oversight. As the largest of the departments within the Executive Branch, the Department of Defense assumes a position of unique and often intense congressional scrutiny. Therefore, more research is needed on the role of congressional oversight of and Defense Department responsiveness to environmental regulatory policy and the resulting fiscal requirements.

Knowledge gained in these areas can be beneficial to the Department of Defense by providing a review of the congressional perspective on DoD's environmental efforts. This enables the Defense Department to better respond to and plan for the continued impact of congressional action regarding defense environmental budget requests.

The next chapter will investigate the legislative action taken by the Congress leading up to an expansion of its oversight of defense environmental issues.

II. CONGRESSIONAL OVERSIGHT OF DEFENSE DEPARTMENT ENVIRONMENTAL ISSUES

The Department of Defense is held accountable by a Congress that is increasingly sensitive to environmental concerns. This has been manifested in a series of diverse legislative initiatives that now shape and define DoD's environmental cleanup and compliance responsibilities.

This chapter will initially review the origins of selected major legislative actions taken by the Congress in the defense environmental area. Subsequently, an examination is made of the congressional committees and subcommittees holding regulatory and fiscal oversight responsibility of defense environmental activity.

A. ENVIRONMENTAL LEGISLATION: AN HISTORICAL PERSPECTIVE

The Department of Defense must comply with a wide variety of statutes regulating its environmental functions, legislation which is generated by the Congress, state legislatures, or local governments. This section focuses on the most critical federal environmental laws and executive orders which have become the cornerstones of the defense environmental process. Appendix B provides a brief overview of other pertinent statutes regulating Defense Department environmental activities.

1. National Environmental Policy Act

As noted in the previous chapter, President Carter's Executive Order 12088 established a link between federal environmental regulations and federal facilities. In addition, Executive Order 12088 required federal agencies to assume the leadership in furthering the prevention, control, and abatement of pollution in compliance with federal environmental regulations.

Prior to the issuance of Executive Order 12088, another executive order became the catalyst for environmental legislative action. On May 29, 1969, President Richard Nixon issued Executive Order 11472. Executive Order 11472 established the Citizen's Advisory Committee on Environmental Quality and the Environmental Quality Council. Action initiated by the two councils led to the drafting of legislation that was signed into law on January 1, 1970, as the National Environmental Policy Act (NEPA). [Ref. 6]

The National Environmental Policy Act provided the United States with its first significant statement on environmental policy. The Act has been cited by many as the commencement of an environmentally oriented legislative decade. A significant portion of NEPA requires federal agencies, including DoD, to provide appropriate consideration to the environmental impacts of their proposed actions prior to the final decision-making process. Federal projects

affecting the environment, and thus coming under the cognizance of NEPA, include those which could interfere with the reasonable and peaceful enjoyment or use of property. Furthermore, NEPA-covered projects include those causing interference with the visual or auditory amenities, danger to the health, safety, or welfare of human life, or irreparable damage to plant or animal life in the vicinity of the proposed project. [Ref. 7]

In addition, NEPA provided for a national environmental policy committed to the use of all practical means of conducting federal operations in a manner that would promote general welfare in harmony with the environment. This provision requires federal agencies to address the consequences of their proposed actions through the preparation of an Environmental Impact Statement (EIS). [Ref. 6]

This Act, unlike other environmental legislation which would follow, does not prohibit any agency activities. Instead, NEPA merely requires, through the EIS process, a documented evaluation of the proposed project's potential environmental impact. Consequently all major DoD projects, not just those related to military construction, which may impact the environment require the preparation of an EIS. [Ref. 6]

Of significant note is the affect the NEPA and EIS process has had on The U. S. Navy's Strategic Homeporting Program. The Navy's efforts to disperse its surface

combatants to various East, West, and Gulf Coast ports has necessitated environmental impact statements for each of the developing homeports.

The EIS must contain a full, fair, yet concise discussion of all significant environmental impacts relating to the proposed action. An EIS can be a very time consuming and expensive process and is frequently contracted out by the proposing activity. [Ref. 8]

Of particular interest to the Defense Department are those environmental project decisions which under NEPA are subject to judicial review. In those instances where NEPA procedures are not adhered to or the project decision is challenged as unreasonable, a court may issue an injunction prohibiting activity until such time as the NEPA provisions have been complied with. Some recent court decisions affecting proposed DoD projects which have been unfavorable to DoD components are in part attributable to a failure to comply with NEPA provisions. [Ref. 6]

Finally, NEPA created a Council on Environmental Quality (CEQ). The CEQ's responsibilities include the monitoring of federal agency adherence to NEPA's provisions and proposing ways of streamlining and improving the EIS process. [Ref. 6]

2. Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in October, 1976, as an amendment to the Solid Waste Disposal Act (SWDA). Subsequently amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, the RCRA established the first comprehensive national strategy for the management of ongoing solid and hazardous waste operations [Ref. 9]. The amended RCRA addressed the gap left by the Clean Air and Clean Water Acts which only required industry to remove hazardous materials from air emissions and water discharges, respectively [Ref. 7]. In addition, the RCRA provides for a cradle-to-grave tracking system of hazardous materials and includes record keeping on the generation, transportation, storage, and disposal of these materials [Ref. 9].

Hazardous waste classification is a major element of the RCRA because in order to be regulated, a waste must be both solid and hazardous. The actual physical state of the waste means little under the Act's guidelines since liquids, sludge, or contaminated gasses are all considered solid wastes by RCRA definition. [Ref. 7]

Following EPA approval of their regulatory program, states and territories are responsible for RCRA administration. Key to this process are the permits issued by state regulatory agencies. Permits are required for hazardous material treatment, storage, or on-site disposal. [Ref. 7]

This permit approval process is critical to virtually every DoD installation due to the on-site existence of such substances and the state regulated retention of such wastes.

Of additional concern to DoD activities is the emphasis the RCRA places on corrective actions. Prior to the HSWA Act of 1984, the term "corrective action", in the RCRA regulatory context, referred only to the remedial action for contaminated ground water. The amended RCRA considers corrective actions as those involving the cleanup of contamination from past, as well as current, operations. The RCRA requires corrective action be included as a condition for new or renewing permits related to the release of hazardous waste at a treatment, storage, or disposal facility.[3] Such facilities, known as solid waste management units (SWMUs), include any waste management unit from which hazardous materials may migrate, regardless of whether the unit was intended for management of solid or hazardous waste.[4][Ref. 9]

A final RCRA provision relating to military installations is a section which authorizes corrective action beyond a facility's boundary. Corrective action must be taken

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[3]The EPA defines "release" in broad terms to include any spilling, leaking, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment. [Ref. 9]

[4]The EPA considers the following sites as SWMUs: landfills, surface impoundments, waste piles, land treatment units, incinerators, injection wells, tanks (including 90 day accumulation tanks), container storage areas, and transfer stations. [Ref. 9]

for releases of hazardous waste that have migrated beyond the facility's border [Ref. 9]. Depending on the size and nature of the hazardous release, the DoD facility may face significant financial cost associated with the corrective action.

3. Comprehensive Environmental Response, Compensation, and Liability Act

Expanding on the environmental initiatives undertaken in the 1970s, legislation enacted on December 11, 1980, marked the beginning of congressional efforts to address the growing problem of toxic waste cleanup. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorized the federal government to commence cleanup of toxic or hazardous contaminants at closed or abandoned hazardous waste dumps. Authorized for a five year period unless reauthorized, CERCLA's major provisions addressed response actions, reporting requirements, liability limitations, and funding of response action. [Ref. 3] Federal agencies, including all DoD components, were specifically required to comply with CERCLA as stated in 42 U. S. Code 9607(g):

> Each department agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government shall be subject to, and comply with, this chapter in the same manner and to the same extent, both procedurally and substantively, as any non-governmental entity, including liability under this section. [Ref. 3]

Specific features of the CERCLA allow the federal government the authority to initiate steps under the directives of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to clean up dangerous and inactive disposal sites in addition to emergency spill situations. Furthermore, CERCLA authority is extended to federal agencies to conduct investigations, tests, and monitoring of disposal sites with additional authority granted to implement remedial actions. [Ref. 7]

The Act permits the federal government to recover the cost of this cleanup and associated damages by suing the responsible parties involved.[5] Under CERCLA, additional cleanup funds can be drawn from a no-year appropriation entitled the Hazardous Substance Response Trust Fund or "Superfund". This Superfund is created by taxes on chemicals and hazardous wastes. [Ref. 3] The Superfund was intended for situations in which environmental damages had occurred, yet responsible parties are unidentifiable or lacking in sufficient funds to clean up the site. [Ref. 7]

Superfund response at DoD installations begins with an initial phase composed of two stages. The first stage, known as the Preliminary Assessment (PA), is an installation-wide survey to determine if sites are present that may pose hazards to the environment or public health. Available data is

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[5]Responsible parties include owners, operators, previous landowners, generators, handlers, and disposers. [Ref. 7]

collected on the source, extent, nature, and magnitude of potential and actual hazardous material releases at sites on the installation. [Ref. 10]

The second stage is a Site Inspection (SI) which consists of sampling and analysis to determine the existence of actual site contamination. The information obtained during the SI is used to evaluate the site and identify the response action required. Uncontaminated sites do not proceed to later phases of this Installation Restoration Program (IRP) process. [Ref. 10]

Contaminated sites are then ranked in accordance with the Hazardous Ranking System (HRS). Under CERCLA provisions, the EPA established the HRS to evaluate contaminated sites based on the potential hazard posed to the public health and environment. In 1991, a revised HRS was adopted by the EPA to evaluate future sites. The application of the original and revised systems, utilizing data gathered during the PA/SI phase, generates a numerical score for each site evaluated. The score is computed based on a variety of factors including the amount and toxicity of the contaminants present, their potential mobility in the environment, the availability of pathways for human exposure, and the proximity of the site to population centers. [Ref. 10]

A score of 28.5 or higher under the HRS places the site on the proposed National Priorities List (NPL). All NPL or Superfund sites are first proposed for NPL listing.

Following a public comment period, proposed NPL sites may be listed on the final NPL or deleted from further Superfund consideration. [Ref. 10]

Both NPL and non-NPL sites are investigated fully in the next phase known as the Remedial Investigation/Feasibility Study (RI/FS). The RI includes a variety of site investigative, sampling, and analytical activities designed to determine the nature, extent, and significance of the contamination. The focus of the RI evaluation is determining the risk to the general public posed by the contaminated site. Concurrently, the FS is conducted to examine the alternatives for remedial action at the site. [Ref. 10]

After an agreement is reached between the Defense Department, EPA, and state environmental authorities on how to clean up the site, the final phase begins. This final phase, Remedial Design/Remedial Action (RD/RA), involves the preparation and implementation of detailed design plans for the cleanup of the contaminated site. [Ref. 10]

A notable exception to this multi-phase IRP process involves Removal Actions (RAs) and Interim Remedial Actions (IRAs). Either RAs or IRAs may be conducted at any time during the IRP process to protect the public health or control releases of contaminants to the environment. Such RA/IRA measures may include providing alternate water supplies to local residents, removing concentrated sources of

contaminants, or constructing facilities to preclude the spread of contamination. [Ref. 10]

4. Superfund Amendments and Reauthorization Act

Set to expire on September 30, 1985, the Superfund process outlined under CERCLA was reauthorized on October 17, 1986, as the Superfund Amendments and Reauthorization Act (SARA). Provisions contained in the SARA specifically reauthorized the Superfund for an additional five years and amended the authority and requirements of the CERCLA and associated laws. In 1990, the Congress extended the authorization of CERCLA until September 30, 1994. [Ref. 9]

The SARA provisions having the greatest impact on DoD environmental activities are contained in Sections 120 and 211. In conference committee action the Congress accepted the Senate's provisions for the establishment of the Defense Environmental Restoration Program (DERP) with certain modifications. These final SARA provisions required that the DERP be carried out subject to, and in a manner consistent with CERCLA. Likewise, all environmental response actions were to be carried out in accordance with CERCLA, including the requirement that the Administrator of the Environmental Protection Agency must jointly select the remedial action for the contaminated site. [Ref. 11]

Consequently, the DERP is codified in law as Section 211 of SARA and amended as Chapter 160 of Title 10 of United

States Code. Furthermore, the DERP is not a legal component of CERCLA, as amended, though it is subject to and must be consistent with CERCLA. [Ref. 9]

The DERP currently includes three programs that act as the centerpiece of Defense Department environmental efforts:

1. The Installation Restoration Process (IRP) investigates potential contamination at DoD installations and formerly owned or used properties and, as necessary, conducts site cleanups.

2. The Other Hazardous Waste (OHW) Operations conducts research, development, and demonstration programs aimed at improving remediation technology and reducing DoD waste generation rates.

3. The Building Demolition and Debris Removal (BDDR) project involves demolishing and removing unsafe buildings and structures at DoD installations and formerly used properties.

The DERP is centrally managed by the Office of the Secretary of Defense. Executive Order 12580 on Superfund Implementation, signed by President Reagan on January 23, 1987, assigned responsibility to the Secretary of Defense for carrying out the DERP within the overall framework of the SARA and CERCLA statutes. [Ref. 10]

In addition to establishing the DERP, conference committee members adopted the House's language regarding an Environmental Transfer Account. This account, entitled the Defense Environmental Restoration Account (DERA), aggregates all environmental restoration funding in a single budget

account.[6] This provides for the allocation of funds from the transfer account to the relevant appropriation accounts and gives the Secretary of Defense the flexibility to address environmental requirements in a timely fashion. [Ref. 11]

B. CONGRESSIONAL COMMITTEE STRUCTURE FOR DEFENSE ENVIRONMENTAL OVERSIGHT

All federal government initiatives, including the NEPA, RCRA, CERCLA, and SARA statutes, require adequate funding and policy direction to ensure successful program implementation. The level of effort demonstrated by DoD to ensure compliance with these environmental statutes is directly related to the interest shown by the Congress during the budgetary and regulatory oversight process. In the House of Representatives four committees maintain jurisdiction over this process; in the Senate three committees currently oversee various aspects of DoD's environmental efforts. This congressional interest is best shown by an outline of the various committees exercising this jurisdiction.

1. House Committees

The two most important committees in the House of Representatives regarding the defense environmental effort are the House Armed Services Committee and the House

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[6]The DERA appropriation is discussed in detail in Chapter III.

Appropriations Committee. Each committee has a subcommittee structure well suited to oversight of defense environmental programs and the associated budgets.

The House Armed Services Committee's Subcommittee on Readiness has oversight of and makes recommendations on the Defense Environmental Restoration Program and Defense Environmental Restoration Account. Of particular note is the Subcommittee's Environmental Restoration Panel, chaired by Rep. Richard Ray (D-Ga.). The Environmental Restoration Panel has held numerous hearings regarding elements of the DERP and continues to play a decisive role in defense environmental oversight.

In addition to the Readiness Subcommittee, the Armed Services Subcommittee on Military Installations and Facilities is active in DERP programs and the funding of the Base Closure Account.[7] These two areas are critical to the funding and implementation of cleanup action at realigning or closing military bases.

Lastly, the Armed Services Subcommittee on Research and Development plays an integral role in oversight of each service's environmental RDT&E budget. This subcommittee is also active in the funding and oversight of DoD's Strategic Environmental Research and Development Program (SERDP).[8]

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[7]The Base Closure Account is discussed in detail in Chapter V.

[8]SERDP is outlined in detail in Chapter IV.

The House Appropriations Committee has two subcommittees designed specifically to address defense issues. The Subcommittee on Defense is active in all phases of the DERA funding process. Likewise, the Subcommittee on Military Construction ensures that the Base Closure Account is funded.

The House Energy and Commerce Committee's Subcommittee on Transportation and Hazardous Materials is charged with overseeing defense activity related to the minimization, transportation, and disposal of hazardous material. Issues in this area sometimes overlap with those addressed by the House Public Works and Transportation Committee's Subcommittee on Water Resources. This subcommittee oversees DoD's transportation of hazardous substances and its relationship to compliance with the Clean Water Act (CWA).

2. Senate Committees

Three Senate committees hold significant roles in defense environmental oversight. They are the Committees on Armed Services, Environment and Public Works, and Appropriations.

Direct oversight of defense environmental programs in the various O&M appropriations, including DERA, occurs in the Armed Services Subcommittee on Readiness, Sustainability and Support. Environmental research, development, test and evaluation funding and oversight, including the SERDP, is

conducted by the Armed Services Subcommittee on Defense Industry and Technology.

The Senate Appropriations Subcommittee on Defense oversees the O&M and RDT&E appropriations related to defense environmental issues, including the DERA and SERDP. The Appropriations Subcommittee on Military Construction oversees the Base Closure Account.

The Senate's Environment and Public Works Committee has three subcommittees which address various defense environmental aspects. Together the Subcommittees on Environmental Protection, on Superfund, Ocean and Water Protection, and on Toxic Substances, Environmental Oversight, Research and Development cut across a variety of critical defense environmental problem areas.

Collectively, these House and Senate committees and subcommittees monitor a variety of complex and dynamic environmental issues. As the defense budget continues to decline throughout the remainder of this decade, it is important to review the process through which the Defense Department is funded to ensure successful environmental cleanup and compliance. This is the subject of the following chapter.

III. OPERATIONS AND MAINTENANCE FUNDING OF ENVIRONMENTAL CLEANUP AND COMPLIANCE

Congressional funding and oversight of Defense Department environmental efforts existed prior to fiscal year 1984. Environmental cleanup and compliance funding before 1984 was centered in the military services' and defense agencies' operations and maintenance (O&M) accounts. Congressional funding and oversight of environmental efforts through the service accounts diminished significantly with the creation of the Defense Environmental Restoration Account (DERA) in 1984.

As a new congressional funding vehicle under the Environmental Restoration, Defense Appropriation, DERA has significantly impacted subsequent service O&M requests and created a second method for the Congress to fund and direct defense environmental efforts. The funding and oversight of the DERA is detailed in the second portion of this chapter. The first portion describes funding arrangements between fiscal year 1984 and the establishment of DERA.

A. THE RISE AND FALL OF SERVICE OPERATIONS AND MAINTENANCE ENVIRONMENTAL FUNDING

Defense environmental funding for the U. S. Army, Navy, Air Force, and the defense agencies is found under a variety

of environmental budget line items.[9] The period between fiscal year 1984 and 1986 reflected considerable flux within these defense component O&M accounts, as the Congress moved funds out of the three service and defense agency accounts and into the DERA.

Typical of the service and defense agency environmental cleanup projects impacted by such an O&M transfer was a variety of toxic waste sites and abandoned buildings containing cancer-causing asbestos fibers. Projects of this nature represented most of the environmental restoration efforts existing within DoD at this time.

The services' and defense agency O&M accounts were appropriated virtually no environmental funds during this three year period as the Congress placed its environmental focus on the establishment and funding of the DERA. Indeed, transfers from the Operations and Maintenance, Army Appropriation totalled $132.7 million over this three year period. These reductions mainly occurred in two O&M, Army line items specifically established by the Congress--Environmental Restoration (Growth) and Environmental Restoration Transfer. [Refs. 12, 13, and 14]

The request for Operations and Maintenance, Navy Appropriations totalled $91.2 million for environmental

[9]The O&M, Marine Corps Appropriation has no specifically designated environmental funding line item.

efforts over this same period. All of these funds were denied by the House and Senate Appropriations Committees. [Refs. 12, 13, and 14]

The Air Force fared poorly over this same period as well. The O&M, Air Force environmental budget requests totalled $193.3 million, yet this entire amount was denied by the Appropriations Conference Committee. In addition, $21.0 million was transferred out of the O&M, Air Force Appropriation and placed in the DERA between fiscal years 1984 and 1986. [Refs. 12, 13, and 14]

Likewise, the Operations and Maintenance, Defense Agencies Appropriation funding line items for environmental restoration and compliance efforts suffered from fiscal year 1984 through 1986. Despite budget requests totalling $16.2 million over this period, reductions totalled $42.4 million, as the Congress pursued funding of the DERA through transfers from these and other accounts. [Refs. 12, 13, and 14]

Surprisingly, a single year anomaly in defense O&M environmental funding occurred during this same period. This anomaly does not appear related to the DERA funds transfers, however.

In fiscal year 1985, the request for the Operations and Maintenance, Army National Guard environmental appropriation received full funding of $940.001 million from both the House and Senate Armed Services and Appropriations Committees

[Ref. 13]. Of significant note is that this has been the only O&M environmental funding specifically requested, authorized and appropriated for reserve forces in the ten year period ending in fiscal year 1993.

The military services refrained from requesting separate O&M funding for environmental restoration and compliance efforts throughout the three year period, fiscal years 1987 through 1989. This is attributable to the expansion of the DERA and the services' response to the desire of the Congress to fund the Defense Environmental Restoration Program (DERP) through the DERA.

The DERP was established to go beyond the services' limited environmental cleanup efforts.[10] Congressional language outlined a more complex and diverse program specifically funded to promote and coordinate efforts for the evaluation and cleanup of contaminated DoD installations. Additionally, the DERP was to conduct environmental remediation technology research and development and building demolition and debris removal.

B. THE RETURN OF SEPARATE O&M ENVIRONMENTAL BUDGETS FOR THE SERVICES AND DEFENSE AGENCIES

Commencing with fiscal year 1990, however, the Senate Appropriations Committee (SAC) successfully added a total of

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[10]The specific aspects of the DERP are discussed in Chapter II.

$200 million to the services' O&M appropriations for "Environmental Projects" [Ref. 15].[11] The undesignated environmental projects line item added by the Senate and supported in Appropriations Conference Committee action provided funds outside of the DERA for the first time since the O&M, Army National Guard funds of 1985 and the first time for the three services and defense agencies since the DERA was created.

The $200 million was unequally distributed among the three services. The SAC earmarked $100 million for "unspecified environmental projects" in the O&M, Army Appropriation. Likewise, the SAC provided $75 million in the O&M, Air Force Appropriation for equally "unspecified environmental projects". [Ref. 16]

The SAC concurred with a House Appropriations Committee (HAC) initiative which provided $15.5 million in additional O&M, Navy funds for environmental cleanup of the former Naval Training Center (NTC), Bainbridge, Maryland. Faced with leaking underground storage tanks and buildings contaminated with hazardous materials at NTC Bainbridge, the Navy reached an agreement with the State of Maryland on the scope and standards of remediation for the site. The $15.5 million was

[11]The Office of the Assistant Secretary of Defense (Comptroller) Congressional Action on FY 1990 Appropriation Request places this figure at $228 million, which conflicts with Congressional Report language cited here.

intended to ensure prompt and safe remediation of the facility and thereby expedite the future disposal of the property [Ref. 16]. In addition to the $15.5 million included for NTC Bainbridge, the Appropriation Committee conferees provided an additional $34.5 million to the O&M, Navy Appropriation for "undesignated environmental cleanup projects" [Ref. 17].

Appropriations Conference Committee language has been specific regarding the funding of these environmental projects. This language indicates congressional concern that Defense Department inaction at these sites may pose significant future cleanup problems.

> The conferees have appropriated $184.5 million [the $15.5 million for NTC Bainbridge was excluded from the statement] to the service operations and maintenance accounts to be used only for environmental facilities and hazardous waste disposal operations. If the services do not provide timely cleanup at current sites, these sites could become future contaminated sites which will require funding in this account [DERA]. [Ref. 17]

Apparently the congressional concern expressed here caused the Appropriations Conference Committee to fund these projects outside of the normal DERA process. This step by the Congress to move outside of a program and account it specifically established was a precursor to similar action to follow.

In its markup of the fiscal year 1991 Defense Appropriation Bill, the House Appropriations Committee continued this tendency the Congress has shown for O&M environmental funding outside of the DERA. The HAC earmarked up to $17 million in O&M, Air Force funds to execute cleanup

of the hazardous waste sites at Hamilton Air Force Base, California. Section 8049 of the HAC's markup specifically directs that expenditures at Hamilton AFB in excess of $15 million shall be reimbursed to the Air Force upon the closing of the sale of the Base's property [Ref. 18]. In effect, the only way for the Air Force to ensure reimbursement of any funds spent on site restoration would be to expend more than $15 million of the $17 million earmarked by the HAC.

Congressionally initiated O&M environmental funding for the services continued outside of the DERA in fiscal year 1992. Under a Senate Armed Services Committee (SASC) initiative, each of the three services gained a new O&M funding line item entitled "Environmental Compliance". The SASC utilized the environmental compliance line item to spread $45.0 million equally across the three services. [Ref. 19]

The SASC also funded a new Army Environmental Policy Institute (AEPI) through the Operations and Maintenance, Army Appropriation. Although the Defense Department had not requested any funds for this purpose, the SASC noted that the AEPI would help the Army Secretariat take a more pro-active stance in environmental issues, such as solid waste management, hazardous waste management, and pollution prevention. The Committee also recognized that in carrying out its mission, the AEPI has worked closely with historically Black colleges and universities. The SASC supported the continued work of the AEPI in assisting the Army in reducing

the amount of waste generated by Army activities, which in turn reduces the Army's long-term waste management costs. [Ref. 20]

Fiscal Year 1992 funds totalling $1.5 million for the AEPI were recommended by the SASC. The Armed Services Conference Committee supported this funding level in its fiscal year 1992 report. [Ref. 19]

The regular DoD budget request was followed by a fiscal year 1992 DoD supplemental budget request. The Army and Navy requested $116.0 million and $33.0 million, respectively, for urgently needed O&M environmental compliance requirements. Both requests were approved by the HAC and SAC without alteration. The O&M, Air Force supplemental environmental compliance request of $263.0 million was also approved by both Houses without adjustment. The O&M, Defense Agencies supplemental request of $19.7 million was increased $50.0 million by the HAC to $69.7 million, while the SAC recommended $19.7 million in supplemental appropriations. Appropriations conferees concurred with the SAC and provided $19.7 million in supplemental environmental appropriations. [Refs. 21 and 22]

Funding for the AEPI continued in fiscal year 1993. Although no funds were again requested by the Defense Department, the SASC recommended $1.5 million for continued AEPI operations. House and Senate Armed Services Committee conferees supported this funding level. [Ref. 23]

Fiscal year 1993 also marked a significant point in congressional support for funding environmental action by the services outside of the Environmental Restoration, Defense Appropriation. The Army and Navy initiated O&M environmental funding efforts through a variety of O&M line items.

The Army's O&M budget request for fiscal year 1993 contained four different environmental programs with a total funding request of $287.176 million. The SAC initiated reductions totalling $36.6 million for a final SAC recommendation of $250.576 million for Army O&M environmental programs. [Ref. 24]

The SAC was as equally generous with the Navy's O&M environmental protection and prediction accounts. Utilizing seven separate O&M line items in these areas, the Navy requested $267.126 million in fiscal year 1993. The SAC provided nearly identical environmental funding for the Navy as it did for the Army, recommending $250.729 million for the Navy's O&M environmental line items. [Ref. 24]

No specific adjustments were made by the Congress to the O&M, Air Force budget request in the area of environmental funding. Since the fiscal year 1993 House and Senate Appropriations Committees' report structure includes items on an exception only basis, the possibility exists that the O&M, Air Force Appropriation includes environmental funding requests which were not adjusted by either House and therefore approved.

Operations and Maintenance funding of unrequested defense agency environmental activities occurred in fiscal year 1993 as well. Armed Services Committee conferees included $10.0 million for college grants related to environmental restoration training and an additional $10.0 million for environmental remediation scholarships [Ref. 23]. These efforts were likely designed to educate and establish a corps of defense experts familiar with environmental remediation at military facilities.

The most significant of all of the fiscal year 1993 Armed Services Committees actions regarding the environmental O&M funding was the $400 million reduction spread equally across each of the military services' O&M accounts as well as the O&M, Defense Agencies Appropriation.

Each of the DoD component's $100 million reductions occurred in a line item entitled "Transfer--National Defense Stockpile". Collectively, the $400 million transfer was made to the National Defense Stockpile Transaction Fund. Funds in the amount of $612 million were then transferred out of the National Defense Stockpile Transaction Fund and into the DERA [Ref. 23]. This $400 million transfer from the services' and defense agencies O&M accounts clearly reestablished the DERA as the dominant funding vehicle for defense environmental restoration and compliance.

The Congress had originally funded defense environmental cleanup and compliance efforts through the O&M accounts of the

separate military services and defense agencies. Subsequently, congressional actions ended this funding in favor of a single centralized account known as DERA. Within a short period of time, however, the Congress returned to the practice of budgeting for environmental restoration through the services and defense agencies O&M accounts, while simultaneously maintaining the centralized DERA account. The defense environmental funding structure had evolved from multiple funding tracks to consolidation, and then to an even more complex arrangement utilizing both separate funding tracks and the consolidation effort.

These multiple funding methods most likely evolved from congressional insistence in 1985 that commencing in 1987, all environmental restoration efforts resulting from currently generated hazardous waste must be funded out of current service and defense agency O&M requests. Likewise, any previously existing hazardous waste must be funded through the DERA for eventual restoration. Congressional funding and oversight of the DERA from fiscal year 1984 through 1993 is outlined in the next section.

C. DEFENSE ENVIRONMENTAL RESTORATION ACCOUNT FUNDING AND OVERSIGHT

1. The Early Period, Fiscal Years 1984-1986

While Congress supported defense environmental projects before fiscal year 1984, these efforts were largely

funded by the various DoD components' O&M accounts previously described. Indeed, a Senate Appropriations Committee review of these actions showed that the Department of Defense had attempted to clean up a number of toxic, hazardous, and unsafe sites at facilities under its jurisdiction from within available operating funds. These largely unbudgeted projects were performed at the expense of other programs, thereby creating what the SAC considered unproductive competition for funding priorities. [Ref. 25]

Consequently, the Defense Environmental Restoration Account (DERA) was established by the Senate Appropriations Committee in 1983, as part of its markup of the fiscal year 1984 Defense Appropriations Bill. Concurrent with the SAC's original DERA funding recommendation of $300 million, the SAC also proposed a reduction from various unidentified O&M accounts totalling $59 million as a means of providing the initial funding for the DERA [Ref. 25]. This funding level was designed to ensure adequate resources for immediate use on cleanup projects which had remained unfunded. Moreover, this funding level also permitted the cleanup of abandoned military facilities, including installations transferred to other governmental and private organizations which posed a threat to the public safety. [Ref. 25]

Subsequently, the Appropriations Conference Committee set DERA's initial funding level at $150 million for fiscal Year 1984. Additional conferee language agreed to the SAC's

recommendation for the transfer of the $59 million into the DERA from other O&M accounts. The DERA was designated as the environmental restoration funding mechanism in the newly created O&M appropriation entitled "Environmental Restoration, Defense" (ER,D). [Ref. 26]

Of significant note is that no funds were authorized for the ER,D Appropriation by the Authorization Conference Committee for fiscal year 1984. Indeed, there is no mention of the ER,D Appropriation in any of the fiscal year 1984 Armed Services Committees' Reports.

In addition, the DERA was created as a transfer account utilizing no-year appropriated funding within the ER,D. As a transfer account, the funds in the DERA would be available for transfer by the Secretary of Defense to any appropriation account or fund within DoD. Funds which were transferred out of the DERA would then be merged with and available for the same purposes and for the same period as the account or fund to which it was transferred. In so doing, the transferred funds would retain the same obligational availability period (OAP), expenditure availability (EAP), and dollar limit restrictions of the account to which it was merged. [Ref. 27]

The no-year appropriation feature of the DERA funds was included to ensure that funds remaining unobligated could be returned to the DERA. In this way, funds in the DERA would

not lapse, but would instead remain available until their transfer to another appropriation.

Furthermore, the Congress specifically directed that the DERA funds which were transferred would only be obligated or expended from the Account in order to "carry out the function of the Secretary [of Defense] with regards to environmental restoration" [Ref. 27]. These functions were defined by the fiscal year 1984 Defense Appropriations Act as:

> ...expenses, not otherwise provided for, for environmental restoration programs, including hazardous waste disposal operations and removal of unsafe or unsightly buildings and debris of the Department of Defense, and including programs and operations at sites formerly used by the Department of Defense. [Ref. 26]

In addition to consolidating defense appropriations related to hazardous waste cleanup efforts, the DERA was designed to increase DoD's management flexibility and responsiveness. As a transfer account, the DERA would provide more flexibility to DoD for the allocation of funds among the services and various appropriations.

For example, although the DERA is located within the ER,D Appropriation, its funds may be transferred to the procurement, RDT&E, and/or military construction appropriations in addition to other O&M accounts in order to carry out hazardous waste cleanups in the most cost effective

manner.[12] Management flexibility is also enhanced by the fact that DERA funds are no-year dollars and can be obligated over an extended period of time. Given the inherent uncertainty associated with the development and implementation of remedial environmental actions, the increased flexibility associated with the allocation and obligation of this appropriation was viewed by the Congress as essential to effective program execution. [Ref. 28]

Initial congressional oversight of the DERA was also delineated in the Appropriations Conference Committee's approval of several SAC recommendations. Specifically, the SAC directed that DoD provide a report to the Congress. This report was to outline the details of the Account's administration, establish guidelines for funding priorities, and determine the executive agent responsible for DERA's management [Ref. 25].

In fiscal year 1985, recognizing its responsibility to comply with the cleanup provisions contained in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the Defense Department budgeted $314 million in various appropriations for this purpose. The Senate Appropriations Committee, however, transferred these funds into the centralized DERA account,

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[12]This final aspect regarding transfers to other O&M accounts was significantly modified by the Congress in 1985 and is discussed in a later portion of this chapter.

while making concurrent reductions in the affected operating, procurement, and RDT&E accounts. [Ref. 29]

In commending a fiscal year 1985 DERA funding level of $314 million, the SAC viewed the defense environmental effort as entering a major new phase. Beyond the fiscal year 1984 efforts to set up initial administration of the Account, fiscal year 1985 was seen as the opportunity to commence extensive engineering design and cleanup contract planning. [Ref. 29]

In addition, fiscal year 1985 marked the first of many congressional efforts to earmark DERA funds for specific cleanup projects. The SAC proposed that up to $6 million of its $314 million recommendation was to be transferred as a one-time payment from the DERA to the Anchorage, Alaska School District. These funds would be available to assist in the cost sharing related to asbestos removal, treatment, and facility rehabilitation at the Bartlett-Begich Junior/Senior High School. The SAC justified such a transfer by noting that almost half of the school is located on land leased to the Anchorage School District by the Department of the Army and that roughly one-quarter of the students were military dependents. [Ref. 29]

The House Armed Services and Appropriations Committees made no such transfers to a centralized account and indeed, both Committees recommended downward adjustments to all three major services' requested environmental program growth. The

HASC justified its recommended total reduction of $122.9 million in these service O&M environmental programs as a slowing of growth rather than a reduction in the level of effort in these programs. The HASC also indicated that

> ...reductions in activities experiencing significant real growth would limit adverse readiness implications and mitigate program turbulence within the Department of Defense operations and maintenance accounts. [Ref. 30]

The Authorization Conference Committee once again failed to authorize funds for the ER,D Appropriation during its fiscal year 1985 markup of the Defense Authorization bill. In fact, aside from tables outlining the $122.9 million in service O&M environmental program cuts, no reference was made to the existence of defense environmental efforts in general, or to the ER,D Appropriation in particular.

In overturning the House Appropriations Committee's recommendation, the Appropriations Conference Committee concurred with the SAC's $314 million DERA funding level. Likewise, the conferees agreed to the SAC's provision transferring $6 million from the DERA for the cleanup of the Bartlett-Begich Junior/Senior High School located on a portion of Fort Richardson, Alaska. [Ref. 31]

The scope of congressional oversight of defense environmental activities continued to increase with the markup of the fiscal year 1986 Defense Appropriations and Defense Authorization bills, and the passage of the Superfund Amendments and Reauthorization Act (SARA) of 1986. Oversight

action relating to the Defense Appropriations bill is addressed first, followed by a discussion of the Defense Authorization bill. This review of fiscal year 1986 congressional oversight concludes with a discussion of the SARA and its relationship to the Defense Environmental Restoration Program.

The HAC's fiscal year 1986 Defense Appropriations bill included a recommendation of $329.1 million for the Environmental Restoration, Defense Appropriation. This represented an increase of $15.1 million over the fiscal year 1985 appropriation. [Ref. 32]

The HAC proposed transferring the $329.1 million from eight separate DoD appropriations as a means of funding the ER,D. These appropriations involved the three services and defense agencies O&M Appropriations, the Aircraft Procurement, Weapons Procurement, and RDT&E, Air Force Appropriations, and the Weapons Procurement, Navy Appropriation. These eight appropriations were selected for funding transfers because each contained funding for a variety of environmental restoration and hazardous waste operations. [Ref. 32]

The SAC's approach to funding the DERA was significantly different from that utilized by the House Appropriations Committee. The SAC provided bill language that alleviated the need for the House's transfer provision, while still funding the DERA at $329.1 million plus an additional $100 million for a total fiscal year 1986 recommendation of

$429.1 million. This level was to "allow the Defense Department to proceed expeditiously in cleaning up hazardous sites". [Ref. 33]

The Senate Appropriations Committee also required DoD to provide an annual report on progress and activities in the environmental arena. The report was to describe the status of each base for which a phase 1 or Preliminary Assessment (PA) had been conducted. The report was also to include a description of the hazards present at each site and DoD's plans and schedules for initiating response action. [Ref. 33]

This report would eventually evolve into the Defense Environmental Restoration Program Annual Report to Congress. The report outlines the level of effort for all military bases currently undergoing environmental restoration and describes some of the latest environmental research and development conducted by the services and defense agencies.

From a budget formulation viewpoint, the SAC recommended that DoD prepare cost estimates for cleanup activities on a site-by-site basis. These cost estimates would then form the basis for the Defense Department's budget justification documents on environmental restoration. [Ref. 33]

Additional Defense Appropriations bill language introduced by the SAC had a profound impact on all subsequent DERA budget requests. The SAC reiterated its desire that DoD establish future budgets for environmental cleanup programs

within the centralized DERA account. Furthermore, the SAC expressed its desire that DoD dispense with the practice of funding currently generated hazardous waste within the ER,D. Specifically the SAC stated:

> The purpose of the [ER,D] is for remedial actions to clean up hazardous waste left unchecked from the past. Future budgets should include funding for current hazardous waste disposal operations within the various service budgets. [Ref. 33]

For transitional purposes, the SAC permitted the use of DERA funds in fiscal year 1986 for these hazardous waste disposal efforts. However, the SAC directed that commencing in fiscal year 1987, DoD's budget request should include separate funding for current hazardous waste disposal operations within the various service budgets. All other service requirements relating to environmental cleanup should be budgeted in the centralized DERA account. [Ref. 33]

Subsequently, the Appropriations Conference Committee agreed to provide $379.1 million in DERA budget authority, instead of the $329.1 million by transfer as recommended by the House or the $429.1 million recommended by the Senate [Ref. 34]. This compromise funding level was $65.1 million more than the fiscal year 1985 appropriation, or a 20.7 percent increase in Environmental Restoration, Defense budget authority.

Neither the House nor the Senate Armed Services Committees authorized funding for the Environmental Restoration, Defense Appropriation in their markups of the

fiscal year 1986 Defense Authorization legislation. This extended the zero funding level policy for the DERA utilized by both Committees in markups of the fiscal year 1984 and 1985 Defense Authorization bills.

In markup action on the fiscal year 1986 Department of Defense Supplemental Authorization Bill, the SASC recommended a funding level of $329.1 million for the DERA, $50 million below the level contained in the fiscal year 1986 Defense Appropriation Act. The SASC's justification for the $50 million reduction was based on several considerations. The SASC concluded that the history of obligation and expenditure rates of the various service restoration funds, the lack of identified projects for the additional funds, and the fact that these funds were not requested in the original DoD budget submission justified the 13.2 percent reduction from the level in the fiscal year 1986 Defense Appropriations Act. [Ref. 35]

The July, 1986 Armed Services Conference Committee action on the DoD supplemental Authorization bill reinstated the $50 million reduction proposed by the SASC for a final DERA authorization of $379.1 million [Ref. 36]. This brought the Defense Authorization bill amount for the ER,D Appropriation in line with the Defense Appropriations bill's DERA funding level for the first time since the ER,D Appropriation and DERA were established. The amounts available in the Environmental Restoration, Defense

Appropriation between fiscal year 1984 and fiscal year 1986, are shown below:

1984	1985	1986
$150 M	$314 M	$379.1 M

[Refs. 26, 31, and 34]

In addition to action on specific defense environmental funding, the Congress codified in permanent law the Defense Environmental Restoration Program. Commencing with a House amendment to the Superfund Amendments and Reauthorization bill of 1986, the DERP was established to provide DoD centralized control of environmental activities in consultation with the Administrator of the EPA. The Defense Secretary was given the basic responsibility to carry out response actions subject to the requirements of, and in compliance with, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980. [Ref. 11]

The establishment of the DERA as the primary funding mechanism for the Defense Environmental Restoration Program was also codified in permanent law as Section 211 of the SARA [Ref. 11]. As a consequence, the DERA and the DERP were legally established entities enabling the Congress to exercise its defense environmental funding and regulatory oversight responsibilities.

Additionally, the permanent legal status of the DERP and DERA provided the impetus for the establishment of the

Office of the Deputy Assistant Secretary of Defense for Environment (DASD(E)). While reporting to the Assistant Secretary of Defense for Production and Logistics, the DASD(E) is responsible for all aspects of the Defense Environmental Restoration Program as well as holding fiduciary cognizance over the Defense Environmental Restoration Account. [Ref. 37]

2. The Middle Period, Fiscal Years 1987-1990

In submitting its fiscal year 1987 budget request, DoD utilized the DERA for the first time since its establishment in fiscal year 1984 legislation. The Defense Department's $385.9 million DERA request exceeded the fiscal year 1986 appropriation by 1.8 percent [Ref. 38].

The House Appropriations Committee's DERA recommendation was $346.1 million, or 10.3 percent below the fiscal year 1987 DoD request [Ref. 38]. The HAC's recommended reduction in DERA budget authority was based on the assumptions that program growth had been extensive and that the program had evidence of poor obligation rates [Ref. 39].

Conversely, the SAC recommended that the DERA receive the $385.9 million requested in the President's Budget. The SAC noted that the DERP is funded through a unique O&M account and that the outlay rates assumed by the Congressional Budget Office (CBO) recognize that the DERP has slow obligation and outlay rates. Furthermore, the SAC recognized that the CBO had assigned a four-year expenditure rate to the DERA funds,

with only 30 percent expended in the first year. In addition, the SAC observed that part of the delay in obligating fiscal year 1986 DERA funds was the disagreement within the Congress over the $50 million difference between Defense Appropriation and Defense Authorization bill markups. [Ref. 39]

The Senate Appropriations Committee's differences with the HAC markup extended to the significance of environmental cleanup policy. The SAC's markup noted that the HAC has failed to recognize that cleaning up contamination from hazardous substances and wastes on both active and formerly used defense sites (FUDS) is a national priority. This Senate concern was quantified in SAC comments that the House's fiscal year $39.8 million DERA reduction would require the delay of planned restoration activity at 54 DoD hazardous waste sites. [Ref. 39]

House and Senate Appropriations Committee conferees agreed with the SAC's funding justification while settling on a $10 million reduction in the requested DERA budget authority. The fiscal year 1987 funding level of $375.9 million was a 0.8 percent reduction from the fiscal year 1986 appropriated level [Ref. 40].

The Armed Services Conference Committee approved the $385.9 million budget request for fiscal year 1987 DERA requirements, while rejecting SASC provisions reducing DERA's funding by $15.3 million. The SASC's rejected proposal recommended a 2.24 percent reduction from the fiscal year 1986

appropriated level. The rejected proposal was based upon the delay in resolving the $50 million fiscal year 1986 additional funding dispute as well as the existence of unused DERA balances remaining from previous fiscal years. The SASC noted that the unused balances were often due to timing problems associated with contractual and legal negotiations surrounding restoration projects and not poor management on the part of DoD. [Ref. 41]

The HAC's markup of the Defense Department's $402.8 million fiscal year 1988 ER,D funding request was highlighted by a discussion of defense environmental programs and policies. The HAC noted that the DERP was moving from an analysis and priority setting phase to a phase in which most funding was used for actual cleanup of contaminated sites. In calling for a $10 million reduction to a recommended DERA funding level of $392.8 million, the HAC also underscored the high priority the Defense Department should assign to:

1. Cleanup of contaminated sites;
2. Disposal of hazardous waste from current operations; and
3. Development of a system to prevent or at least minimize future environmental problems. [Ref. 42]

The Senate Appropriations Committee disagreed with the HAC's $10 million reduction and noted that even funding the budget request of $402.8 million would not adequately address fiscal year 1988 requirements. Furthermore, the SAC commented that the funding requested and appropriated since 1984 was

only just beginning to make inroads into the large number of contaminated DoD sites that had accumulated from years of misuse. [Ref. 42]

The Appropriations Conference Committee concurred with the SAC's justification for the higher funding level. In so doing, the conferees recommended a fiscal year 1988 DERA funding level equal to the budget request of $402.8 million [Ref. 43].

The House Armed Services Committee's markup of the fiscal year 1988 Defense Authorization bill provided full funding of the President's DERA request [Ref. 44]. However, the fiscal year 1988 Defense Authorization Conference Report shows that as passed by the House and submitted to conferees for action, the Defense Authorization Act cut $10 million from the budget request, indicating floor action in the House subsequent to the House Armed Services Committee's Report [Ref. 45].

The SASC's markup of the same Defense Authorization bill provided full funding for the ER,D Appropriation to a level of $402.8 million for fiscal year 1988. This was subsequently reduced by the Armed Services Conference Committee to coincide with the House's recommendation of $392.8 million. [Ref. 45]

Following five years of funding growth, the House Armed Services Committee's Environmental Restoration Panel held a series of hearings in November, 1987 and March, 1988,

on the DERA funding levels and other related environmental restoration issues. In its review of the various programs within the DERP, the Panel focused on the scope and magnitude of the DoD environmental restoration effort. [Ref. 28]

As of the end of fiscal year 1987, 739 military installations containing 5,165 contamination sites had been included in the DERP's Installation Restoration Program (IRP). Preliminary Assessments/Site Inspections (PA/SI) had been completed at 3,735 sites. Remedial Investigation/Feasibility Studies (RA/FS) had been completed at 1,096 sites and Remedial Design/Remedial Actions (RD/RA) had been completed at 126 sites. Altogether, work was underway at over 3,600 contaminated sites. [Ref. 28]

In terms of the most serious hazardous waste sites, the EPA had listed 29 DoD installations on the National Priorities List (Superfund List) and had proposed 15 more as Superfund candidates. Legislative schedules for completion of the PA/SI process and initiation of the RI/FSs had been met for all of these facilities except one. In addition, the RD/RA removal process had been undertaken at 11 of the 29 Superfund sites. [Ref. 28]

Testimony from DoD and EPA witnesses showed that the DERA had been appropriated over $1.6 billion from fiscal year 1984 to 1988 in support of these DERP efforts. Interestingly, this was approximately the same amount expended during the first five years of the Superfund. [Ref. 28]

This suggests that although much different in project scope and magnitude, DoD and the EPA faced many of the same problems at the outset of their respective remediation programs. Consequently, DoD might benefit from a closer working relationship with the EPA in future years both in terms of cost estimating and dealing with the congressional oversight associated with these funds.

A milestone in congressional support for the ER,D Appropriation was reached in markups of the fiscal year 1989 Defense Appropriations and Defense Authorization bills. In agreeing to the DERA budget request of $500 million, the House and Senate Armed Services and Appropriations Committees provided full and unaltered funding. Congressional action on the fiscal year 1989 DERA request was the only time since the DERA was established that none of the congressional bodies altered in some fashion the Environmental Restoration, Defense Appropriation budget request.

In addition to providing a 24.1 percent increase in DERA funds over the previous year's funding total, congressional emphasis in fiscal year 1989 focused on DoD environmental policy. In particular, the HASC, through its Environmental Restoration Panel, significantly expanded its role in DoD environmental policy formulation.

The HASC made specific comments in its fiscal year 1989 Committee Report reflecting its desire that DoD continue with the Defense Department's "worst first" cleanup policy.

Under this cleanup policy, DoD would consider a variety of factors, including the safety of human health, and proceed first with cleanup action on those contaminated sites determined to be the worst. In conjunction with this "worst first" policy, DoD developed the Defense Site Remediation Priority Model, commonly referred to as the Defense Priority Model. [Ref. 46]

The Defense Priority Model uses quantitative data gathered in the RI/FS phase to establish site priorities. Although only in the field testing stage as of mid-1988, DoD would begin to apply the Model in fiscal year 1989 and use it in the development of future DERA budget requests. [Ref. 46]

Congressional appropriation action on the fiscal year 1990 DERA budget request of $517.8 million commenced with the HAC recommending $900.8 million. The HAC based its 74 percent increase on a desire to accelerate the DERP programs associated with cleanup of toxic and hazardous wastes. These DERP initiatives were outlined by DoD personnel during testimony before the HAC in 1988. [Ref. 47]

In the 1988 testimony, DoD estimated the total cost of the Installation Restoration Program (IRP) portion of the DERP at between $11 billion and $14 billion. This estimate did not take into account two smaller portions of the DERP, the Building Demolition and Debris Removal (BDDR) and the Other Hazardous Waste (OHW) Operations. [Ref. 47]

The House Armed Services Committee reinforced the significance of IRP funding when it noted that DoD's increased emphasis on hazardous waste cleanup actions had changed the allocation of DERA funds in preceding years. The HASC noted that although 25 percent of DERA funds went for BDDR in fiscal year 1984, almost no funding was expended for such activity in fiscal years 1987 and 1988, since these projects represented lower priority threats to human health and the environment. [Ref. 48]

In addition, between fiscal years 1984 and 1986, DERA funds were used to pay for hazardous waste disposal, but beginning in fiscal year 1987 such costs were transferred to the military service O&M accounts to provide an incentive to reduce the current generation of hazardous waste. As a result of these changes, in fiscal year 1988, 93 percent of DERA funds were spent on previously existing hazardous waste cleanup actions. [Ref. 48]

Likewise, the Senate Appropriations Committee continued to consider the funding of IRP projects through the DERA a national priority. However, the SAC's markup of the DERA budget failed to provide any additional funding beyond the requested $517.8 million [Ref. 15].

The Appropriations Conference Committee's markup came in more closely aligned with the SAC's recommendation, providing $601.1 million for the DERA in fiscal year 1990 [Ref. 49]. This figure corresponded with the recommendation

of the Authorization Conference Committee. While the Appropriations Committee conferees agreed to the authorized level, they considered this level to be well below what was required by DoD to alleviate the backlog of environmental cleanup sites.

The Appropriations Committee conferees concluded their Conference Report by strongly encouraging DoD to submit a higher funding level in the fiscal year 1991 budget request [Ref. 49]. The amounts available in the Defense Environmental Restoration Account from fiscal year 1987 to 1990, are shown below:

1987	1988	1989	1990
$375.9 M	$402.8 M	$500 M	$601.1 M

[Refs. 39, 42, and 48]

3. A Period of Rapid Funding Growth, Fiscal Years 1991-1993

The significant congressional focus on the DERA budget prompted DoD to dramatically increase its fiscal year 1991 funding request. Originally set at $519.9 million in the fiscal year 1990/1991 biennial budget request, DoD revised this request to $817 million, or 57.1 percent above its original fiscal year 1991 DERA budget request.

[Refs. 50 and 51]

The increase in DERA funding requirements corresponds to a significant growth in the scope of the defense

environmental cleanup problem. The number of suspected hazardous waste sites grew from 14,401 at 1,597 military installations in fiscal year 1989 to 17,482 sites at 1,855 installations by the end of fiscal year 1990. Likewise, the number of DoD Superfund sites increased from 41 in fiscal year 1989 to 95 such sites on 89 installations at the end of fiscal year 1990. [Ref. 52]

In expressing its concern for the growing number of possible DoD remediation sites, the Senate Armed Services Committee noted that the DERA had an estimated funding shortfall of approximately $145 million in fiscal year 1990 and $300 million in fiscal year 1991. The SASC indicated that this funding shortfall was mainly in the areas of continuing site studies and actual scheduled cleanup actions. [Ref. 53]

As a consequence, the Senate Armed Services Committee's fiscal year 1991 recommendation provided an additional $200 million above the DERA budget request, $25 million of which was earmarked for defense environmental research and development.[13] The Authorization Conference Committee subsequently recommended a fiscal year 1991 DERA funding level of $1062.527 million, $45.527 million more than the SASC's recommended level. [Ref. 54]

The House Appropriations Committee's concern about the growing number of current and former DoD sites with toxic and

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[13]Defense environmental research and development funding is addressed further in the following chapter.

hazardous waste contamination prompted it to recommend a significant increase in fiscal year 1991 DERA funding as well. The resulting HAC recommendation of $1.9 billion corresponded to an approximately 133 percent increase in proposed budget authority over the President's budget request. [Ref. 18]

In addition, the HAC circumvented DoD's "worst first" priority model by earmarking minor amounts of fiscal year 1991 DERA funds. The HAC directed DoD to provide $350,000 in DERA funding to supplement the State of Oregon's Department of Economic Development. The funds would be utilized for investment and development of a comprehensive long-term plan for the protection and productive development of the Umatilla Army Depot, Oregon. Furthermore, the HAC recommended that DoD conduct a two-year comprehensive program, not to exceed $1.5 million, of off-site groundwater testing and monitoring in proximity to the Norwalk Defense Fuel Supply Point, California. [Ref. 18]

Similarly, the Senate Appropriations Committee went outside of the Defense Priority Model as it directed DoD to give priority to the cleanup of contamination at Army ammunition plants. The SAC also directed DoD to report in the DERA budget justification documents for fiscal year 1992 the remediation plans for these ammunition production facilities. [Ref. 55]

The Senate Appropriations Committee also provided a dramatic increase in DERA's fiscal year 1991 budget authority.

The SAC's markup recommended $245.527 million more than the budget request, or a 30 percent increase from the DERA budget submission. [Ref. 55]

In supporting the Senate's funding increase, the Appropriations Conference Committee recommended a fiscal year 1991 DERA funding level of $1.062527 billion [Ref. 56]. This appropriation level more than doubled DERA's budget authority in only two years and provided a 76.8 percent increase over the previous fiscal year's appropriation, all against the backdrop of a declining overall defense budget.

Senator Trent Lott commented on the implications of this during 1991 Senate hearings in preparation for the fiscal year 1992/1993 Defense Authorization bill:

> The Department of Defense programs are transitioning from emphasis on study and review to emphasis on correction and cleanup. The funding requirements are increasing, because correction and cleanup will be much more expensive than studies. This transition comes at a time when Defense budgets are decreasing. [Ref. 57]

Against this declining DoD budget backdrop, the fiscal year 1992 DERA budget request increased 53.4 percent over the previous fiscal year's request to $1.2529 billion. In comparison with the fiscal year 1991 final appropriation level of approximately $1.062 billion, the fiscal year 1992 DERA request represented a 17.9 percent increase.

The House Appropriations Committee's response to the $1.2529 billion DERA request was to recommend an increase of an additional $900 million to $2.1529 billion. The HAC

directed that these funds be used so as to give priority to the worst sites first in order to protect the public health and safety. [Ref. 58]

In its markup of the Defense Appropriations bill, the SAC expressed its continued frustration with the slow pace with which DoD was conducting its contaminated site activities. The SAC noted that it was sensitive to public criticism that site remediations were proceeding too slowly and that an excessive amount of DERA funds was being applied to environmental studies rather than actual restoration activities. [Ref. 59]

The SAC recommended that the restoration activities funded through the DERA receive the requested level of $1.2529 billion. However, in recognition of the growing cost of cleanup activities at military bases marked for closure or realignment, the SAC also recommended that $69 million of the $1.2529 billion be transferred to the 1990 Base Closure Account.[14] This brought the SAC's final DERA recommendation to $1.1839 billion. [Ref. 59]

The House and Senate Appropriations Committee conferees agreed with the SAC's funding level and recommended $1.1839 billion for DERA in fiscal year 1992 [Ref. 60]. The Appropriations Committee conferees also agreed to a SAC recommendation regarding a program of expedited site cleanup.

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[14]Funding of the Base Closure Account is discussed in Chapter V.

The proposal directed DoD to accelerate and streamline its environmental restoration program. Specifically, the recommendation directed DoD to establish a 15-installation pilot expedited environmental cleanup program based upon:

1. Full compliance with environmental statutes;

2. Use of existing authorities for the expedited and substantial cleanup of hazardous waste on DoD installations;

3. Use of integrated contracts to consolidate more than one phase of cleanup; and

4. Use of contractor competency as well as cost in awarding contracts. [Ref. 61]

The Defense Department submitted a fiscal year 1992 supplemental budget request of $447.5 million for the DERA. The HAC and SAC recommended full funding of this request to meet urgently needed environmental cleanup requirements. [Refs. 21 and 22]

The Defense Department's fiscal year 1993 DERA budget submission requested $901.2 million to carry out its growing list of environmental projects. Although reduced from its fiscal year 1992/1993 biennial budget request of $1.452 billion, the fiscal year 1993 DERA request included provisions for the newly mandated expedited cleanup program. [Ref. 62]

In action similar to the SAC's $69 million earmark for the Base Closure Account, the House Appropriations Committee continued the now common practice of earmarking DERA funds outside of the Defense Priority Model. The HAC directed DoD to spend no less than $16 million of the fiscal year 1993 ER,D

Appropriation to remove contamination from Coast Guard facilities formerly operated by DoD [Ref. 62].

In addition, the HAC's markup of the fiscal year 1993 Defense Appropriations bill concurred with the DERA budget request of $901.2 million. Furthermore, the HAC noted a general provision had been included in the bill that would provide authority to transfer funds into the ER,D Appropriation from the National Defense Stockpile Transaction Fund. [Ref. 62]

Subsequently, the Senate Appropriations Committee indicated that the fiscal year 1993 DERA funding request had increased to $1.5132 billion, or $612 million above the originally requested level [Ref. 61]. This $612 million increase reflects a transfer from the National Defense Stockpile Transaction Fund as previously outlined in the O&M funding portion of this chapter.

The SAC also earmarked ER,D Appropriation funds in its fiscal year 1993 markup of the Defense Appropriations bill. The SAC directed DoD to provide $200 million in DERA funds only for the expedited cleanup of contaminated DoD sites and only in accordance with a comprehensive plan submitted to the Congress [Ref. 61]. These funds were earmarked by the SAC in association with references to increased public impatience with the pace of contaminated site restoration by DoD, even after implementation of the fiscal year 1992 directed pilot expedited environmental cleanup program.

Likewise, the House and Senate Authorization Committee conferees recommended $1.5132 billion in fiscal year 1993 DERA budget authority. The final fiscal year 1993 Environmental Restoration, Defense Appropriation funding level is shown in Figure 2 as well as a funding profile of the ER, D Appropriation since its establishment in fiscal year 1984.

In addition, the Authorization Committee conferees called for an expedited cleanup program different from that passed in the fiscal year 1992 Defense Appropriations Act. Under the Authorization Conference Committee's expedited cleanup program, DoD would establish a pilot program to expedite the performance of on-site environmental response actions at military installations undergoing DERP activities. The conferees considered the goal of this new program to be identification of ways to expedite or reduce the costs of environmental restoration. Once identified, any new concepts, technologies, or initiatives could then be incorporated into other programs. [Ref. 63]

The following chapter discusses the funding of environmental technology research and development through the services and defense agencies RDT&E accounts from fiscal year 1984 to 1993. In addition, new congressional initiatives in defense environmental research and development are discussed.

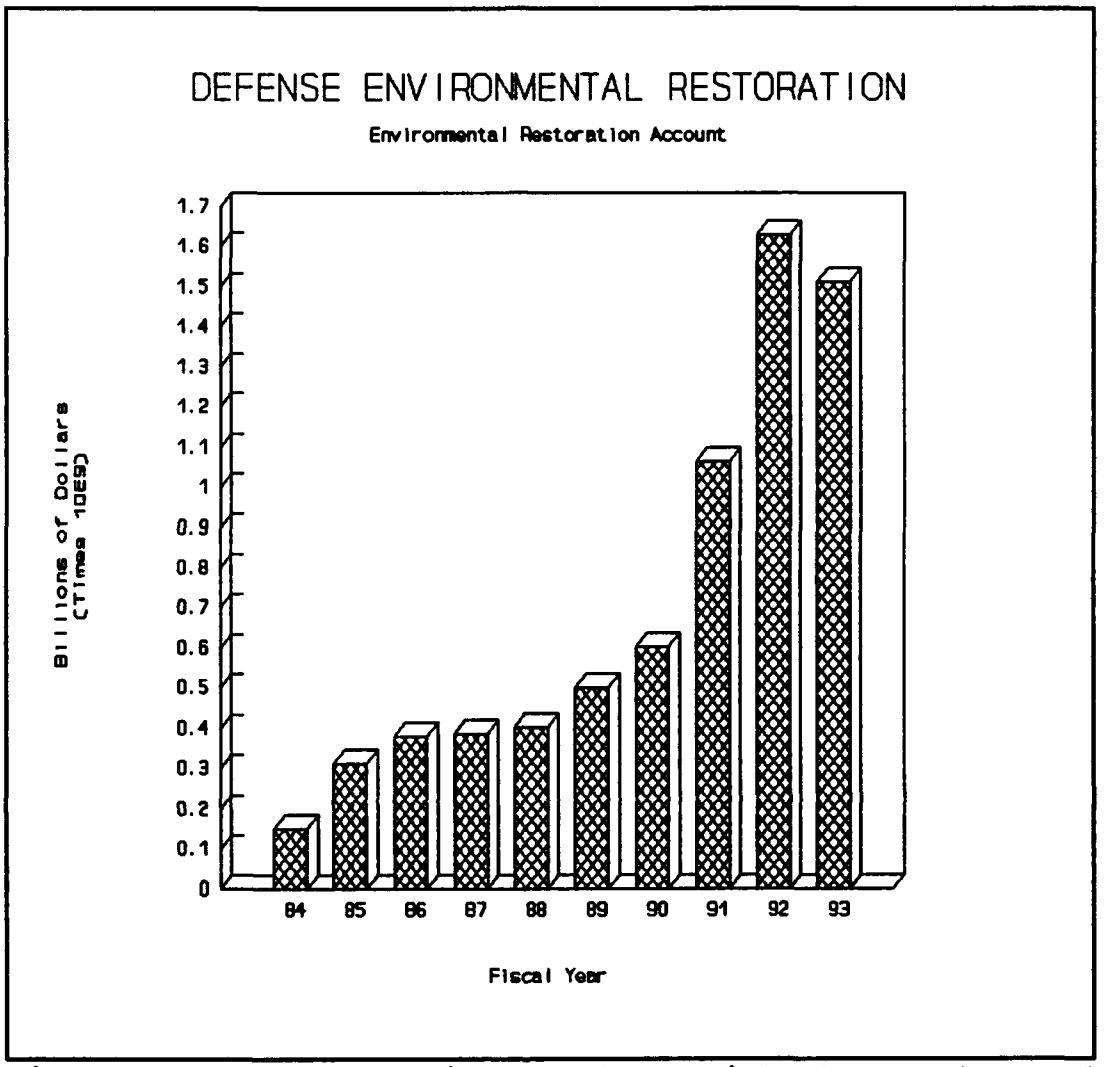

Figure 2 Sources: Office of the Assistant Secretary of Defense (Comptroller), Congressional Action on Fiscal Years 1984-1993 Appropriation Requests and Congressional Record, Vol. 138, No. 128, p. H8782, September 18, 1992.

IV. RESEARCH FUNDING OF DEFENSE ENVIRONMENTAL ACTIVITIES

The Department of Defense has funded environmental Research, Development, Test and Evaluation (RDT&E) activities through two primary funding tracks since 1984. These two funding paths, the military services' RDT&E appropriations and the RDT&E, Defense Agencies Appropriation, are examined here for the period between fiscal years 1984 and 1993.[15]

This chapter's initial focus is on the three services' RDT&E appropriations as they are related to defense environmental funding.[16] This portion is presented in two sections. The first section focuses on the relatively stable period between fiscal year 1984 and fiscal year 1990, while the second section addresses the more active RDT&E funding changes from fiscal year 1991 to fiscal year 1993.

The second portion of this chapter addresses the major environmental programs funded through the RDT&E, Defense Agencies Appropriation. This discussion focuses particular attention on the congressionally established Strategic Environmental Research and Development Program (SERDP).

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[15]Although likely to increase, only $5 million, or less than 0.5 percent of the ER,D Appropriation was expended for environmental Research, Development, and Demonstration (RD&D) in fiscal year 1991. [Ref. 10]

[16]The RDT&E, Marine Corps Appropriation does not contain a funding line specifically addressing Marine Corps environmental research and development requirements.

A. SERVICE RDT&E ENVIRONMENTAL FUNDING, FISCAL YEARS 1984-1993

The authorization and appropriation of funds for defense environmental activities through the services' RDT&E appropriations existed prior to fiscal year 1984. However, the emergence of a national environmental awareness in the 1970s and environmental regulatory measures enacted by the Congress in the early and mid-1980s, including the establishment of DERA, mark fiscal year 1984 as a significant point at which to commence a review of environmental funding in the military services RDT&E appropriations.

1. Fiscal Year 1984-1990 Funding

The DoD budget submissions between fiscal years 1984 and 1990 contained relatively stable RDT&E environmental funding requests for each of the three major services. The RDT&E, Navy request was centered in the "Environmental Protection" line item; the RDT&E, Air Force environmental requests were included in the "Civil Engineering and Environmental Quality" line item; and the Army's environmental RDT&E requirements have been included in the "Environmental Quality Technology" line item.

Addressed collectively, each of these RDT&E environmental line items received fairly consistent, and more importantly, unadjusted funding during this seven year period. This funding stability is likely attributable to the increased

congressional attention given to successful implementation of the Defense Environmental Restoration Account. Consequently there was less congressional micromanagement of the services' environmental RDT&E requests between fiscal years 1984 and 1990.

For example, the following tables provide the services' environmental RDT&E line item budget requests for fiscal years 1984 to 1990. In addition, the Authorization and Appropriations Conference Committees recommended amounts are included with any adjustments initiated by these Committees.

TABLE 1

RDT&E, NAVY ENVIRONMENTAL PROTECTION
FUNDING, FISCAL YEARS 1984-1990

(Dollars in Millions)

	1984	1985	1986	1987	1988	1989	1990
Request	10.41	8.02	8.35	8.72	8.88	5.81	10.69
Auth.	8.15	8.02	8.35	8.72	8.88	5.81	10.69
Change	(2.26)	0.00	0.00	0.00	0.00	0.00	0.00
Appn.	8.15	8.02	8.35	8.22	8.88	6.21	10.69
Change	(2.26)	0.00	0.00	(0.5)	0.00	0.4	0.00

[Refs. 12, 13, 14, 15, 64, 65, and 66]

TABLE 2

RDT&E, ARMY ENVIRONMENTAL QUALITY TECHNOLOGY
FUNDING, FISCAL YEARS 1984-1990

(Dollars in Millions)

	1984	1985	1986	1987	1988	1989	1990
Request	8.36	11.18	8.91	8.76	9.92	9.54	11.90
Auth.	8.36	11.18	8.91	8.76	9.92	9.54	11.90
Change	0.00	0.0	0.00	0.00	0.00	0.00	0.00
Appn.	8.36	11.18	8.91	8.76	9.92	9.54	11.90
Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[Refs. 12, 13, 14, 15, 64, 65, and 66]

TABLE 3

RDT&E, AIR FORCE
CIVIL ENGINEERING AND ENVIRONMENTAL QUALITY
FUNDING, FISCAL YEARS 1984-1990

(Dollars in Millions)

	1984	1985	1986	1987	1988	1989	1990
Request	5.01	17.25	11.488	13.7	5.68	5.54	6.05
Auth.	4.41	15.3	11.488	13.2	5.68	5.54	6.05
Change	0.60	(1.95)	0.00	(0.5)	0.00	0.00	0.00
Appn.	4.41	15.3	11.485	13.7	5.68	5.54	6.05
Change	0.60	(1.95)	(.003)	0.00	0.00	0.00	0.00

[Refs. 12, 13, 14, 15, 64, 65, and 66]

As shown in Table 1, during this seven year period, the RDT&E, Navy Environmental Protection request received full funding in five of the seven fiscal years, with the

Appropriations Conference Committee providing $400,000 more than requested in fiscal year 1989. The average annual Environmental Protection request was $8.697 million, while the average annual authorized funding level was $8.374 million. The average annual appropriation during this period was $8.36 million.

Similarly, the RDT&E, Army's Environmental Quality Technology requests shown in Table 2 received full funding throughout the entire seven year period from both the Authorization and Appropriations Conference Committees. The average annual request, authorization, and appropriation was $9.798 million between fiscal year 1984 and fiscal year 1990.

The RDT&E, Air Force Civil Engineering and Environmental Quality budget requests are provided in Table 3. The Air Force's environmental RDT&E request also received full appropriation funding support in five of the seven fiscal years. A sixth year, fiscal year 1986, missed full funding by $3000. The Authorization Conference Committee also provided full funding in five of the seven years reviewed. The average annual Civil Engineering and Environmental Quality request was $9.245 million. The average annual authorization provided $8.8097 million and the Appropriation Conference Committee recommended an average $8.881 million over the same period.

What little fiscal oversight evidenced in this period is reflected in RDT&E, Navy Environmental Protection and Air Force Civil Engineering and Environmental Quality during the

period between fiscal year 1984 and fiscal year 1987. Both requests received full funding between fiscal years 1988 and 1990.

The RDT&E, Army's Environmental Quality Technology received full funding during each of the seven fiscal years analyzed. This trend would be significantly altered during the subsequent three year period, fiscal years 1991 to 1993.

2. Fiscal Year 1991-1993 Funding

In its fiscal year 1991 budget submission, the Army requested $9.815 million for Environmental Quality Technology. The House Armed Services Committee increased this by an additional $5.0 million to fund accelerated research on both environmental contamination prevention and cleanup. [Ref. 54]

The Senate Armed Services Committee's markup of the Army's RDT&E environmental request provided an additional $2.0 million beyond the budget submission. This $11.815 million level was increased still further by the Authorization Conference Committee to a final funding level of $12.815 million for fiscal year 1991. The Authorization conferees earmarked the final $3.0 million increase to the Environmental Quality Technology request for the commencement of work and office structuring related to the Army's integration with the Strategic Environmental Research and Development Council

(SERDC).[17] In addition, the conferees directed that $1.5 million of the $3.0 million increase to Environmental Quality Technology be used to investigate the reconstitution of potable water from waste water. [Ref. 67]

The House Appropriations Committee's markup of the fiscal year 1991 Environmental Quality Technology budget provided $5.0 million above the request. The HAC earmarked the additional funds for research experiments, system design, construction, and testing of a fully functional unit to decontaminate soil using concentrated solar energy. The HAC noted that this non-polluting, renewable energy source has the potential to perform on-site contamination cleanup at lower cost, less residue, and environmental impact. [Ref.18]

Subsequently, the SAC's markup of the Army's environmental RDT&E request recommended $14.5 million, an increase of $4.9 million above the request. The SAC earmarked $1.9 million of the increase to fund enhanced development of alternatives to open burning and detonation of obsolete explosive rounds and waste propellants, and to conduct research on incineration of paint waste. [Ref. 55]

Additionally, the Senate Appropriations Committee earmarked $2.9 million of the $4.9 million increase for the Army's Natick Research, Development and Engineering Center in

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[17]The SERDC and its role in the Strategic Environmental Research and Development Program (SERDP) are discussed in the second portion of this chapter.

Natick, Massachusetts. The $2.9 million was intended for use on developing biodegradable plastic utilizing starch-based polymer technology to aid the Navy's efforts to minimize the disposal of plastic wastes at sea. [Ref. 55]

The Appropriations Conference Committee provided a final fiscal year 1991 Environmental Quality Technology funding level of $12.815 million, or $3.0 million above the Army's RDT&E request [Ref. 51]. The Appropriations conferees markup included no indication as to which, if any, of the HAC's or SAC's research and development initiatives the conferees supported. The matching of the $3.0 million recommended by the Authorization conferees suggests Appropriations conferees' support for the SERDC coordination effort.

The fiscal year 1991 congressional markups of the RDT&E, Navy Environmental Protection and the RDT&E, Air Force Civil Engineering and Environmental Quality requests were less turbulent than that given the Army's environmental RDT&E request. The Navy's $11.56 million request and the Air Force's $5.615 million budget submission were each increased $5.0 million by the House Armed Services Committee for accelerated research on both environmental contamination cleanup and prevention [Refs. 67 and 68]. Neither services' request was increased by the SASC for fiscal year 1991.

The Authorization Conference Committee recommended an additional $1.5 million to $13.06 million for Navy

Environmental Protection and $7.115 million for Air Force Civil Engineering and Environmental Quality [Ref. 68]. Each service's $1.5 million increase was earmarked by the Authorization conferees for integration and coordination with the SERDC [Ref. 67].

Although the HAC recommended an additional $5.0 million for Navy Environmental Protection in fiscal year 1991, this recommendation was denied by the Appropriations Conference Committee. Neither the SAC nor the Appropriations conferees recommended additional environmental research and development funds for the Navy and Air Force. However, both service's request did receive full appropriation funding in fiscal year 1991. [Ref. 51]

Likewise, all three services received full authorization and appropriation funding for or increases to their environmental RDT&E requests in fiscal year 1992. The House Armed Services Committee's markup of the Army's fiscal year 1992 Environmental Quality Technology request of $18.984 million recommended an increase of 34.5 percent to $28.984 million. The HASC designated the additional $10.0 million for accelerated technology development and contamination source reduction. This research and development would involve advanced treatment methods of contaminated soil and groundwater, site investigations, data collection, modeling, and other hazard assessments. [Ref. 52]

The Senate Armed Services Committee recommended full funding of the Environmental Quality Technology request for fiscal year 1992, although no additional funds were authorized. The Authorization Conference Committee sided with the HASC's $10.0 million increase for a final fiscal year 1992 authorized funding level of $28.984 million. [Ref. 19]

In its markup of the fiscal year 1992 Defense Appropriation bill, the House Appropriations Committee recommended a $10.0 million increase for Environmental Quality Technology. Of this amount, the HAC earmarked $5.0 million for the Army's Toxic and Hazardous Materials Agency. [Ref. 60]

The Agency was directed by the HAC to utilize the $5.0 million to develop a demonstration project which would identify the best technologies, techniques, and methodologies to address complex environmental issues facing the Army. The Agency was also encouraged to coordinate its efforts with the Army Material Command (AMC), the executive agent for the National Defense Center for Environmental Excellence (NDCEE).[18] [Ref. 60]

The Appropriations Conference Committee concurred with the HAC's $5.0 million earmark for the Toxic and Hazardous Materials Agency. The Appropriations conferees also earmarked an additional $5.75 million of the $10.75 increase to

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[18]Although the AMC was the executive agent for the NDCEE, the Center was funded through the RDT&E, Defense Agencies Appropriation. The NDCEE is discussed in the second portion of this chapter.

Environmental Quality Technology. The conferees designated $5.3 million of the $5.75 million for the Natick Research, Development and Engineering Center to work closely with members of academia, government, and private industry on the commercialization of biodegradable plastics for food packaging and other products. The remaining $450,000 of the $5.75 million was earmarked for safety and environmental studies at the White Sands Missile Range, New Mexico. These studies were to determine the feasibility of using the Range as a possible landing site for the National Aeronautics and Space Administration's (NASA's) unmanned life sciences capsules. [Ref. 60]

Not nearly as complex as the markup of the Army's environmental RDT&E request, the RDT&E, Navy's Environmental Protection fiscal year 1992 request of $26.143 million was fully funded by the Authorization Conference Committee. Similarly, the Appropriations Conference Committee recommended full funding of the Navy's fiscal year 1992 Environmental Protection request. [Refs. 19 and 60]

The RDT&E, Air Force's Civil Engineering and Environmental Quality request of $6.744 million was increased 148 percent under a fiscal year 1992 HASC recommendation. Although the HASC's $10.0 million increase to $16.744 million was subsequently trimmed by $5.0 million by the Authorization Conference Committee, the final authorization level of $11.744

million represented a 57.4 percent increase above the requested level. [Ref. 19]

The House Appropriations Committee also recommended an additional $10.0 million for the Air Force's environmental RDT&E requirement. This recommendation was denied in the Appropriations Conference Committee's markup of the fiscal year 1992 request, as the conferees settled on full funding of the $6.744 million request. [Ref. 60]

The Senate Armed Services Committee's markup of the fiscal year 1993 Defense Authorization bill significantly expanded its distribution of RDT&E environmental funds beyond the services' three primary line items. The Air Force's Civil Engineering and Environmental Quality request for $11.773 million was increased by $2.5 million under the SASC's recommendation. [Ref. 69]

In addition, the SASC recommended an additional $17.5 million for a variety of Air Force environmental research and development activities. Specifically, the SASC earmarked $1.9 million for materials, $3.5 million for human systems technology, $1.0 million for advanced weapons, $1.0 million for command, control, and communications, $3.0 million for logistics systems technology, and $500,000 for other operational equipment as part of the $17.5 million RDT&E increase. The SASC noted that the additional funds would allow the Air Force the opportunity to meet a wide variety of environmental compliance challenges. [Ref. 69]

Furthermore, the SASC indicated that the Air Force's environmental research and development efforts might include advanced technologies for environmental restoration, ordnance reclamation, and heavy metal plating alternatives. Environmentally compliant paint stripping and application techniques, hazardous materials recycling, and improved contamination characterization methodologies were also mentioned by the SASC as areas of Air Force research which could utilize these funds. [Ref. 69]

However, the Authorization Conference Committee's markup of the RDT&E, Air Force budget request failed to provide the additional $2.5 million recommended by the SASC for Civil Engineering and Environmental Quality. Without comment, the Authorization conferees agreed to fully fund the Civil Engineering and Environmental Quality request of $11.773 million [Ref. 23].

Likewise, the House and Senate Appropriations Committees recommended full funding without alterations for the fiscal year 1993 RDT&E, Air Force Civil Engineering and Environmental Quality request. This recommendation was upheld in Appropriations Conference Committee action, as $11.773 million was appropriated [Ref. 70]. This is shown in Table 4 which provides the RDT&E, Air Force Civil Engineering and Environmental Quality budget requests for fiscal years 1991 to 1993. In addition, the Authorization and Appropriations

Conference Committees recommended amounts are included with any adjustments initiated by these Committees.

TABLE 4

RDT&E, AIR FORCE
CIVIL ENGINEERING AND ENVIRONMENTAL QUALITY
FUNDING, FISCAL YEARS 1991-1993

(Dollars in Millions)

	1991	1992	1993
Request	5.615	6.744	11.773
Authorization	7.115	11.744	11.773
Change	1.50	5.00	0.00
Appropriation	5.615	6.744	11.773
Change	0.00	0.00	0.00

[Refs. 19, 23, 51, 60, 68, and 70]

The Senate Armed Services Committee also provided an additional $20.0 million for RDT&E, Navy environmental requirements in its markup of the Navy's fiscal year 1993 request. The $20.0 million increase to the Environmental Protection budget request of $29.212 million was designated by the SASC for chloroflourocarbon (CFC) and halon research and development projects. [Ref. 69]

In noting the Montreal Protocol's mandated phase-out of CFCs by the year 2000, the SASC indicated that the additional funding would allow the Navy to place increased emphasis on efforts to develop, identify, and adopt substitute chemicals as well as alternative non-ozone depleting technologies for CFCs used in refrigeration, air conditioning,

and as cleaning solvents aboard ships and at shore facilities. Additionally, the funds would be used to accelerate identification and testing of halon substitutes for use in shipboard and ashore fire suppressant systems. Finally, the additional funds would be available for research into plastics substitution, advanced shipboard waste management technologies, and ordnance reclamation. [Ref. 69]

As with the SASC's additions to the Air Force's environmental RDT&E request, the Authorization conferees refused to provide the additional $20.0 million to the Navy's Environmental Protection request for fiscal year 1993. The fully funded $29.212 million Environmental Protection request still represented an 11.7 percent increase from the authorized and appropriated level of fiscal year 1992. [Ref. 23]

The House and Senate Appropriations Committees also recommended full funding of the fiscal year 1993 Environmental Protection request. This funding level was adhered to in Appropriations Conference Committee action and $29.212 million was appropriated for fiscal year 1993. This is shown in Table 5 which provides the RDT&E, Navy Environmental Protection budget requests for fiscal years 1991 to 1993. In addition, the Authorization and Appropriations Conference Committees recommended amounts are included with any adjustments initiated by these committees.

Table 5

RDT&E, NAVY ENVIRONMENTAL PROTECTION
FUNDING, FISCAL YEARS 1991-1993

(Dollars in Millions)

	1991	1992	1993
Request	11.56	26.143	29.212
Authorization	13.06	26.143	29.212
Change	1.50	0.00	0.00
Appropriation	11.56	26.143	29.212
Change	0.00	0.00	0.00

[Refs. 19, 23, 51, 60, 68, and 70]

Congressional action on the Army's Environmental Quality Technology request was significantly altered in fiscal year 1993. As each House and Senate Committee with jurisdiction over the Army's environmental RDT&E request exercised its special control, a variety of environmental initiatives was recommended for funding through the Army's Environmental Quality Technology request.

The HASC, in recommending an additional $24.0 million, earmarked $5.0 million of the increase for the Center for Geosciences. The $5.0 million for the Center for Geosciences was to fund an investigation into the synergy of atmosphere and hydrologic sciences, remote sensing using satellites, radar, and lidar, and boundary layer studies. Other Center for Geosciences research funded by this increase included climate changes, geomorphology, and information extraction and visualization. [Ref. 63]

The HASC earmarked an additional $15.0 million of the $24.0 million recommended increase for the Natick Research, Development and Engineering Center. These funds were designated for use in expanding research at the Natick facility in the area of environmental biotechnology and agricultural initiatives. [Ref. 63]

Subsequently, the Senate Armed Services Committee recommended an addition of $39.5 million to the Environmental Quality Technology fiscal year 1993 request. This brought the recommendation to a level of $57.947 million [Ref. 23]. Portions of the $39.5 million increase were earmarked for a variety of Army environmental activities.

The SASC directed that $10.0 million be provided for the Army's Toxic and Hazardous Materials Agency to conduct a process engineering demonstration in support of the Installation Restoration Program (IRP) portion of the DERP. The SASC also designated $5.0 million to support research into solid waste treatment and bioremediation techniques; $5.0 million to support the increased emphasis on efforts to identify and develop substitute chemicals for CFCs and halon and to support research and development projects that identify improved heavy metal plating technologies; and $10.0 million to establish a research program at the Jefferson Proving Ground, Indiana, to develop detection and removal technologies for unexploded ordnance to be used in cleaning up other ordnance contamination sites. [Ref. 69]

The House and Senate Authorization Conference Committee recommended $51.947 million for Environmental Quality Technology, an increase of $33.5 million over the fiscal year 1993 request [Ref. 23]. This represented an increase of 181.6 percent from the fiscal year 1993 request.

The House Appropriations Committee's recommendations regarding the fiscal year 1993 Environmental Quality Technology request somewhat paralleled the HASC's recommendations. In addition to the $24.0 million increase recommended by the HASC, the HAC added an additional $25.0 million for a recommended level of $67.447 million, $49.0 million more than the budget request of $18.447 million. [Ref. 62]

The $25.0 million added by the HAC was also earmarked for several Army environmental activities. The HAC provided $5.0 million for the NDCEE, $10.0 million to establish a national research and development center at the Jefferson Proving Ground to advance the technology in unexploded ordnance remediation, and $10.0 for the Toxic and Hazardous Materials Agency. The $10.0 million for the Toxic and Hazardous Materials Agency was to conduct a process engineering plasma technology demonstration project to determine the best methods to efficiently process hazardous wastes in an economically and environmentally safe manner. [Ref. 62]

Substantially less than the HAC's recommended level, the SAC's fiscal year 1993 Environmental Quality Technology recommendation provided an additional $5.5 million to the Army's budget request. Again expressing its support for biodegradable food packaging, the SAC earmarked $4.5 million for the Natick Research, Development and Engineering Center to accelerate research in this starch-based polymer technology. The remaining $1.0 million was earmarked for the Hawaii Small Business Development Center to research the commercialization of agricultural-industrial products of interest to the Department of Defense. [Ref. 61]

The Appropriations Conference Committee concurred with a variety of House and Senate environmental research and development initiatives, including the SAC's $1.0 million earmark for the Hawaii Small Business Development Center. The conferees recommended $66.347 million for the Army's Environmental Quality Technology for fiscal year 1993 [Ref. 70]. This is shown in Table 6 which provides the RDT&E, Army Environmental Quality Technology budget requests for fiscal years 1991-1993. In addition, the Authorization and Appropriations Conference Committees recommended amounts are included with any adjustments initiated by these Committees.

Programs earmarked included $5.0 million for the NDCEE, $4.4 million for starch-based polymer technology research, and $10.0 million to establish a national research and development center at the Jefferson Proving Ground to

TABLE 6

RDT&E, ARMY ENVIRONMENTAL QUALITY TECHNOLOGY FUNDING, FISCAL YEARS 1991-1993

(Dollars in Millions)

	1991	1992	1993
Request	9.815	18.984	18.447
Authorization	12.815	28.984	51.947
Change	3.00	10.00	33.50
Appropriation	12.815	29.734	66.347
Change	3.00	10.75	47.90

[Refs. 19, 23, 51, 60, 68, and 70]

advance unexploded ordnance remediation. Additional conferee earmarks included $5.0 million for plasma technology and pink water demonstration projects at the Army's Toxic and Hazardous Materials Agency, $10.0 million for the National Environmental Waste Technology Testing and Evaluation Center to develop and use new technologies designed to expedite remediation and cleanup of residual waste, and $10.0 million for the Natick Research, Development and Engineering Center to develop products used by DoD which could be produced from agricultural crops. [Ref. 70]

The SAC's earmarking of Army funds for the Hawaii Small Business Development Center and the HAC's earmarking of Army funds for the National Defense Center for Environmental Excellence are examples of how Congress has blurred the lines of funding between programs clearly beneficial to defense environmental restoration and compliance efforts and those set

aside to support local research centers during the defense drawdown. Although the Congress signalled that these joint-benefit Research, Development, and Demonstration (RD&D) projects would be funded through the RDT&E, Defense Agencies Appropriation, funding of local initiatives has continued through the services' environmental RDT&E requests.

B. DEFENSE AGENCIES RDT&E ENVIRONMENTAL FUNDING, FISCAL YEARS 1988-1993

1. Fiscal Year 1988-1990 Funding

Congressional use of the RDT&E, Defense Agencies Appropriation to fund defense environmental research and development began with the markup of the fiscal year 1988 Defense Appropriation bill. This activity commenced with the House and Senate Appropriations Committees recommending the establishment of a new RDT&E, Defense Agencies Appropriation line item entitled "Environmental Hazards Research". [Ref. 42]

In its markup of the fiscal year 1988 Defense Appropriations bill, the Senate Appropriations Committee noted that the purpose of Environmental Hazards Research was to enable DoD to strengthen its current research efforts in developing technologies aimed at protecting public health and the environment from the hazardous substances generated and used by DoD. Furthermore, the SAC expressed its concern that the operation and maintenance of equipment and weapons

systems, defense production plant environments, and accidents and leaks involving hazardous substances posed a long-term threat to personnel and the environment. Also key to the establishment of the research program was congressional concern that hazardous waste generated at DoD facilities threatened DoD with potential future liability in the event that the surrounding environment or local population was exposed to such wastes. [Ref. 42]

As a result of these concerns, the House and Senate Appropriations Committees agreed to establish the Environmental Hazards Research line item as a means of ensuring that DoD maintained an essential bioenvironmental hazards research capability. This capability was to involve a collaborative effort between a historically Black university and a major research university. [Ref. 42]

Subsequently, both Appropriations Committees recommended $16.5 million for Environmental Hazards Research for fiscal year 1988. Although these funds were not requested by DoD, the Appropriations Conference Committee agreed to the recommendation and provided $16.5 million to the RDT&E, Defense Agencies Appropriation for this research effort. [Ref. 65]

Because this new research program was initiated by the Appropriations Committees and had not been requested by DoD, neither the House nor the Senate Armed Services Committees made fiscal or regulatory provisions for Environmental Hazards

Research in their markups of the Defense Authorization bill. However, arrangements were made to provide $33.0 million for Environmental Hazards Research as a result of Authorization Conference Committee action for fiscal year 1988. [Ref. 71]

This trend continued the following year as DoD made no request for Environmental Hazards Research funds and neither the House nor the Senate Armed Services Committees recommended funding for this initiative in the fiscal year 1989 defense Authorization bill. Unlike the fiscal year 1988 Authorization Conference Committee's action, no funding was provided for fiscal year 1989 Environmental Hazards Research by the Authorization conferees.

The Environmental Hazards Research initiative received this same treatment by the House Appropriations Committee in its markup of the fiscal year 1989 Defense Appropriations bill. Without comment, the HAC refused to recommend funding for a second year.

The Senate Appropriations Committee, however, recommended another $16.5 million for Environmental Hazards Research. The Appropriations Conference Committee agreed to the SAC's recommendation and provided $16.5 million for completion of the program's expanding research into bioenvironmental impacts of defense activities [Refs. 42 and 66]. This is shown in Table 7 which provides the RDT&E, Defense Agencies environmental programs budget requests for fiscal years 1988 to 1990. In addition, the Authorization and

Appropriations Conference Committees recommended amounts are included with any adjustments initiated by these Committees.

TABLE 7

RDT&E, DEFENSE AGENCIES ENVIRONMENTAL FUNDING, FISCAL YEARS 1988-1990

(Dollars in Millions)

	1988	1989	1990
Request	0.00	0.00	0.00
Authorization	33.0	0.00	0.00
Change	33.0	0.00	0.00
Appropriation	16.5	16.5	0.00
Change	16.5	16.5	0.00

[Refs. 15, 65, 66, and 71]

The Environmental Hazards Research program ceased to exist beyond fiscal year 1989 as no additional funding was requested, authorized, or appropriated. In addition, the RDT&E, Defense Agencies Appropriation remained clear of congressional environmental oversight until the Senate Armed Services and House Appropriations Committees marked-up the fiscal year 1991 Defense Authorization and Defense Appropriations bills, respectively.

2. Fiscal Year 1991-1993 Funding

Through the efforts of the Senate Armed Service Committee in general, and Senators Al Gore (D-Tn.) and Sam Nunn (D-Ga.) in particular, defense environmental research and development entered a new phase with action on the fiscal year

1991 Defense Authorization bill. In that legislation, Senators Gore and Nunn helped to establish the Strategic Environmental Research and Development Program (SERDP).

The SERDP would utilize the existing resources, talent, and technologies of the Department of Defense, Department of Energy (DoE), and the intelligence community to "confront the massive environmental problems facing our nation and the world today".[19] As originally envisioned by the SASC, the SERDP would:

1. Identify and declassify a wide range of data gathered by the defense community for use by civilian scientists for research on global climate change;

2. Identify existing defense research programs utilizing advance energy technologies that could be further developed for use by DoD, DoE, and the public to conserve non-renewable sources of energy and to reduce harmful atmospheric emissions; and

3. Conduct research to develop new environmental cleanup technologies that could assist DoD and DoE in their cleanup efforts. [Ref.53]

To achieve these auspicious objectives, the SASC recommended $200.0 million for the RDT&E, Defense Agencies Appropriation for fiscal year 1991 [Ref. 53]. The SASC received significant support in the Authorization Conference Committee's markup of the Defense Authorization bill. The Authorization conferees concurred with the SASC's stated

[19]The SERDP would subsequently become a tri-agency program involving the DoD, DoE, and EPA. [Ref. 72]

objectives for the establishment of the SERDP and provided $200.0 million for fiscal year 1991 [Ref. 68].

The Senate Appropriations Committee also recommended $200.0 million for the SERDP for fiscal year 1991. The SAC noted that although it supported the goals and general direction of the SERDP, it believed that this new program failed to address certain concerns central to a balanced environmental protection and restoration effort. [Ref. 55]

The SAC's concerns included the SERDP's lack of support for species conservation activities on DoD lands and sufficient emphasis on the development of renewable energy sources. Furthermore, the SAC added the issue of global environmental change to the SERDP's mission. Consequently, the SAC earmarked $25.0 million of the $200.0 million recommended appropriation for the establishment of an Arctic region supercomputing center to support research by DoD, other federal agencies, and the academic community. [Ref. 55]

The SAC indicated that the acquisition of one supercomputer, with ownership to be retained by DoD, would commence under this $25.0 million effort. The SAC recommended that the supercomputing center be established at an institution engaged in DoD research located within the Arctic region. [Ref. 55]

Although the establishment of the SERDP was neither funded nor addressed by the HAC during its fiscal year 1991 markup of the Defense Appropriations bill, the Appropriations

Conference Committee supported the SERDP during its deliberations. The Appropriations conferees agreed to provide $150.0 million to establish the SERDP, including the $25.0 million supercomputing center earmark recommended by the SAC. [Ref. 56]

The Appropriations Conference Committee also utilized the fiscal year 1991 RDT&E, Defense Agencies Appropriation to support a HAC initiative which provided $5.0 million for the National Defense Center for Environmental Excellence (NDCEE). Under the direction of the National Defense Environmental Corporation (NDEC), the NDCEE would work with DoD on environmental areas of concern to the NDEC. [Ref. 56]

The use of the RDT&E, Defense Agencies Appropriation to fund various defense environmental initiatives expanded in fiscal year 1992. In addition to funding the SERDP and NDCEE, the Congress initiated two more defense environmental research line items to be funded by this Appropriation.

The HASC's markup of the fiscal year 1992 RDT&E, Defense Agencies Appropriation contained a recommendation that $20.0 million be earmarked for the Earth Conservancy in Hanover, Pennsylvania. This grant would be used by the Earth Conservancy to establish an advanced technology demonstration facility having expertise in applied environmental technology and business administration. [Ref. 52]

The HASC also provided funding for a program entitled "Defense Environmental Studies Development". Without comment,

the HASC recommended an earmark of $10.0 million in the fiscal year 1992 RDT&E, Defense Agencies Appropriation for this program. [Ref. 52]

Additionally, the HASC recommended funding the NDCEE for fiscal year 1992 through a portion of a $90.0 million increase to the budgets of the military services, Defense Advanced Research Projects Agency (DARPA), and the Office of the Secretary of Defense (OSD). The HASC earmarked $5.0 million of the $90.0 million increase for the NDCEE and also directed the Secretary of Defense to establish a new budget line for the planning and coordinating of environmental research as well as the development of a long-term plan to address defense-related environmental problems. [Ref. 52]

Although the HASC provided no fiscal year 1992 funding for the SERDP, the SASC recommended $100.0 million for the SERDP for fiscal year 1992. Citing the continued importance of the SERDP to defense environmental research and development efforts, Senator Tim Wirth (D-Co.) commented during Senate Armed Services Committee hearings on the fiscal year 1992 Defense Authorization bill:

> It may be that by investing $200 million, for example, in research this year, we may save three times that in cleanup costs at the end of this decade. I believe that this concern was behind much of the thinking that went into the Strategic Environmental Research and Development Program.... [Ref. 57]

The Authorization Conference Committee also expressed its continued support for the SERDP, although it recommended

a fiscal year 1992 funding level of $50.0 million, half the figure proposed by the Senate. The Authorization conferees noted that DoD's initial implementation plan for the SERDP contained only a few projects related to data gathering and analysis. Consequently, the conferees directed the SERDP's governing body, the Strategic Environmental Research and Development Council (SERDC), to increase the emphasis on this SERDP primary mission area by utilizing a portion of the $50.0 million recommendation. [Ref. 73]

The House Appropriations Committee declined to fund the SERDP for fiscal year 1992. Instead, the HAC's approach to defense environmental research and development funding was to provide funds to the Defense Environmental Special Project and Defense Environmental Studies Development.

The HAC's markup of the fiscal year 1992 Defense Appropriations bill recommended $20.0 million in RDT&E, Defense Agencies Appropriation funds for the Earth Conservancy's Defense Environmental Special Project. Likewise, the HAC provided $10.0 million for the Defense Environmental Studies Development line item of the RDT&E, Defense Agencies Appropriation. Of this $10.0 million recommendation, the HAC earmarked $5.0 million to fund the establishment of a Texas Regional Institute of Environmental Studies. A cooperative effort involving Sam Houston State and Stephen F. Austin Universities, this Texas activity would help bring the academic and private sector communities together to

assist DoD, DoE, and other federal, state, and local agencies in addressing strategic and non-strategic environmental pollution problems in the southeastern United States. [Ref. 58]

The Senate Appropriations Committee denied funding to these HAC supported measures, opting instead for dramatic increases in funding for the SERDP. Recommending an astounding $885.0 million for fiscal year 1992 SERDP functions, the SAC maintained the Senate's strong support for this program. [Ref 74]

However, the Senate position, more than $830.0 million above the authorized level, was abandoned in the Appropriations Conference Committee markup of the fiscal year 1992 Defense Appropriation bill. The Appropriation conferees recommended $50.0 million for SERDP activities, earmarking $1.0 million of this amount for the Consortium for International Earth Science Information Network (CIESIN). The Consortium's role was to jointly study and develop mechanisms for the transfer of unclassified and recently declassified information to other government agencies and non-governmental organizations involved in global environmental change research. [Ref. 60]

The Defense Department subsequently requested $30.0 million in fiscal year 1992 supplemental appropriations for the SERDP. The HAC cited a slow obligation rate as justification for its reduction to a recommended level of $7.0

million. The SAC cited SERDP Phase I and Phase II projects as justification for its $39.8 million increase to a recommended funding level of $69.8 million in supplemental appropriations. Subsequently, Appropriations conferees increased the SAC's level by an additional $5.0 million for a final SERDP supplemental appropriation of $74.8 million. [Refs. 21 and 22]

The Senate continued its strong support for the SERDP in the SASC's markup of the fiscal year 1993 RDT&E, Defense Agencies Appropriation. While recommending a funding level of $200.0 million for fiscal year 1993, the SASC noted that it continued to believe that the SERDP would provide unique opportunities to gain increased understanding of the environment that would assist the nation's national security interests. [Ref. 69]

Without comment, the Authorization Conference Committee expressed its support for the SERDP by recommending $200.0 million for fiscal year 1993 [Ref. 23]. This represented a 400 percent increase over the fiscal year 1992 authorized level.

The House Appropriations Committee finally recommended funding for the SERDP in its markup of the fiscal year 1993 Defense Appropriations bill. Of the HAC's $15.5 million recommendation, $10.0 million was earmarked for the National Environmental Waste Technology Testing and Evaluation Center in Butte, Montana. This Center would develop and utilize new technologies designed to expedite the remediation and cleanup

of residual waste. The HAC earmarked $5.0 million for the Consortium for International Earth Science Information Network (CIESIN) and $500,000 to support the Coalition for International Environmental Research and Assistance (CIERA). The funds earmarked for the CIERA were to assist in the development of a comprehensive open system architecture to support the detection, monitoring, and resolution of environmental problems. [Ref. 62]

The Senate Appropriations Committee's markup of the fiscal year 1993 Defense Appropriations bill parallelled the funding level previously recommended by the SASC during its deliberations. The SAC's $200.0 million recommendation for the SERDP was down significantly from its fiscal year 1992 recommendation of $885.0 million, but $184.5 million above the HAC's fiscal year 1993 recommendation. [Ref. 61]

The Appropriations Conference Committee concurred with the HAC's $5.0 million earmark for the CIESIN and the $500,000 earmark for the CIERA development during its markup of the fiscal year 1993 RDT&E, Defense Agencies Appropriation. In addition, the Appropriations conferees earmarked $3.5 million for bioremediation as part of its final SERDP recommendation of $180.0 million. [Ref. 70]

This funding level is shown in Table 8 which provides the RDT&E, Defense Agencies environmental programs budget requests for fiscal years 1991 to 1993. In addition, the Authorization and Appropriations Conference Committees

recommended amounts are included with any adjustments initiated by these Committees.

TABLE 8

RDT&E, DEFENSE AGENCIES ENVIRONMENTAL FUNDING, FISCAL YEARS 1991-1993

(Dollars in Millions)

	1991	1992	1992 Supplemental	1993
Request	0.00	0.00	30.00	0.00
Authorization	200.00	75.00	0.00	200.00
Change	200.00	75.00	(30.00)	20.00
Appropriation	155.00	75.00	74.80	180.00
Change	155.00	75.00	44.80	180.00

[Refs. 19, 21, 22, 23, 51, 60, 68, and 70]

A pattern is apparent in the manner in which Congress funded defense environmental efforts through the RDT&E budgets. During the initial phase, fiscal year 1984 to 1990, congressional funding of defense environmental efforts through the services' RDT&E budgets was characterized by relatively little congressional oversight. This is evidenced by the comparatively small service RDT&E environmental budgets as well as the slow growth in these budgets.

The second phase of the services' environmental RDT&E budgets, fiscal year 1991 to 1993, was addressed much differently by the Congress. This phase was characterized by significant congressional interest and oversight. The larger number of earmarks is evidence of this increased congressional

role. Similarly, the services' environmental RDT&E budgets significantly increased and this growth was much faster than in the initial phase of service environmental RDT&E funding.

This slow, stable growth pattern followed by more rapid growth and associated congressional oversight is apparent in the RDT&E, Defense Agencies Appropriation environmental programs as well. This Appropriation had relatively few congressional earmarks in the late 1980s. However, this was followed by a period of rapid growth in environmental earmarks. More importantly for DoD is the difficulty in drawing direct beneficial relationships to defense environmental efforts for a few of these latter earmarks.

This pattern provides some insight into what this funding was intended to accomplish. The services' environmental RDT&E budgets have been utilized to solve environmental problems that were related to service specific missions. The Navy's anti-fouling paint research is an example of this. In addition, individual services were assigned the lead role in researching specific multi-service environmental issues as well as providing this information to the other services. An example of this is the Army's unexploded ordnance research. Even though all the services operate weapons ranges and are responsible for their eventual restoration should they suspend operations, the Army was given the lead role in this type of research.

This service environmental RDT&E funding focus contrasts significantly with the objectives the Congress has set for the environmental programs in the RDT&E, Defense Agencies Appropriation. This Appropriation has been used for more comprehensive issues affecting several federal agencies. The SERDP is an example of this effort through its tri-agency programs. Likewise, the Congress has used this Appropriation to fund research at local activities where a beneficial link to DoD environmental efforts is not readily apparent.

Although the SERDP has been used in some degree to provide environmental funding to local research facilities, the vast majority of SERDP funding remains under the cognizance of DoD's Office of the Director, Defense Research and Engineering (DDR&E) [Ref. 57]. The DDR&E's close liaison with the Deputy Assistant Secretary of Defense for Environment (DASD(E)) has enabled much of this defense environmental research and development to benefit the DASD(E)'s environmental restoration efforts associated with closing or realigning DoD installations.

Since a significant number of these closing or realigning DoD installations require environmental restoration, a review of the congressional regulatory and fiscal oversight associated with these efforts is appropriate. This is the subject of the following chapter.

V. BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL FUNDING

The third and most recent element of congressional oversight of defense environmental funding is exercised through the base realignment and closure process. As DoD facilities are closed or realigned, costs related to the environmental restoration of each installation have been incurred. This chapter focuses on congressional oversight and funding of these costs from fiscal year 1990 to 1993. It begins with a brief review of the base realignment and closure process.

A. BASE CLOSURE AND REALIGNMENT PROCESS

Following the Grace Commission's 1983 recommendations for a base closure commission independent of congressional oversight, former Secretary of Defense Frank Carlucci established the Commission on Base Realignment and Closure on May 3, 1988. Subsequently, the Congress passed the Base Closure and Realignment Act in October 1988, as an amendment to the fiscal year 1989 Defense Authorization Act. [Ref. 75]

Under the base realignment and closure (BRAC) amendment, the Congress and the President agreed to review the BRAC Commission's recommendations for potential base closures. In addition, a process was created whereby the Congress would have to vote for a resolution to overturn the recommendations

of the BRAC Commission and the Secretary of Defense, in order to prevent the closures from occurring. This was a significant departure from the position held by the Congress since 1977 which prevented base closures despite DoD's annual proposals to close unnecessary installations. [Ref. 75]

At the end of 1988, the bipartisan BRAC Commission submitted a list of 86 military facilities for closure, 54 bases for realignment, and five for partial closure. The Commission estimated the annual savings at $694.0 million.[20] [Ref. 76]

The 1988 list of installations known as "BRAC 88" and the 1990 closure list known as "BRAC 90" were selected based on several Commission precepts. These included:

1. Developing a comprehensive methodology for identifying bases as candidates for realignment and closure that emphasized military value as the key criterion for assessing bases;

2. Grouping bases with similar missions, determining the bases' military value, evaluating the bases' capacity to absorb additional missions, and determining the bases' overall excess capacity; and

3. Scoring an ranking the bases to identify those warranting further review. [Ref. 77]

In arriving at its cost saving estimates, however, the BRAC Commission chose to ignore the costs associated with the environmental cleanup of these closing or realigning

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[20]The BRAC Commission's chartered criteria stated that only those installations whose closure or realignment resulted in savings exceeding costs within six years of closure or realignment may be selected. [Ref. 16]

facilities. The Commission carried out its charter under the assumption that by law, the installations had to be cleaned up anyway, so consequently there was no need to factor these restoration costs into the savings equation. [Ref. 76]

This has proven to be an expensive assumption. As an aide to the House Armed Service Committee has stated:

> One of the surprises about the base closure process, though it shouldn't have surprised us, was the failure to recognize the significance of environmental laws that had been passed [earlier] and the impact they would have. [Ref. 76]

Consequently, a discussion of the congressional oversight and fiscal ramifications of base closure environmental restoration is appropriate. The following section outlines this oversight and funding from fiscal year 1990 to 1993.

B. BASE CLOSURE ENVIRONMENTAL FUNDING, FISCAL YEARS 1990-1993

1. Fiscal Year 1990 Funding

The first defense environmental restoration funding associated with base realignment and closure occurred in fiscal year 1990. Congressional oversight of the fiscal year 1990 base closure funding request was evident in both the Military Construction (MILCON) and Defense Appropriations Committees as well as the Armed Services Committees of each House. Although this overlapping review process would be resolved in fiscal year 1991, it led to turbulence during

review of fiscal year 1990's $500.0 million base realignment and closure funding request.[21]

Following the House MILCON Appropriations Committee's markup of the fiscal year 1990 MILCON Appropriation bill and recommendation for full funding of the Base Closure Account (BCA), the Senate MILCON Appropriations Committee recommended the elimination of all funding in the BCA because "the Senate Subcommittee on Defense [Appropriations] has jurisdiction over base closures in the 'Operations and Maintenance' account" [Ref. 78]. Subsequently, the entire $500.0 million funding level was reinstated to the BCA by the MILCON Appropriations Conference Committee [Ref. 79].

Congressional concern also existed over how much and from which account, BRAC environmental restoration would be funded. Indeed, the foremost issue raised by congressional witnesses during the HAC's fiscal year 1990 Defense Appropriations bill hearings involved the costs of environmental cleanup at bases to be closed or realigned and the source of DoD funds for that purpose [Ref. 47].

Subsequently, the Defense Appropriations Conference Committee established that the Base Closure Account was authorized to fund environmental restoration costs at bases proposed for closure and realignment. The Base Closure

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[21]This funding request was for all costs associated with the base realignment and closure process with no portion specifically designated for environmental cleanup.

Account, and not the Environmental Restoration, Defense Appropriation, was to be used to clean up contamination at installations proposed for closure by the BRAC Commission. [Ref. 49]

Of significant note is that none of the nine congressional committees involved in reviewing the fiscal year 1990 BRAC funding request specifically earmarked funds in the BCA for environmental restoration of closing or realigning bases. Ultimately $38.0 million was obligated from the BCA in fiscal year 1990 for environmental restoration of the 145 bases selected in 1988 [Ref. 76].

2. Fiscal Year 1991 Funding

The House Armed Services Committee's markup of the fiscal year 1991 Defense Authorization bill expressed the concern that base closure environmental cleanup costs were not factored into the BRAC Commission's calculation of whether the closures would pay for themselves within six years. Consequently, the HASC recommended increasing the BCA request of $916.5 million by $100.0 million and earmarking the additional funds for environmental restoration at closing or realigning bases. Furthermore, the HASC proposed that the Base Closure Account be the exclusive source of funding for environmental restoration projects at these facilities. [Ref. 54]

The SASC cut the HASC's recommended increase by one-half, proposing an earmark of $50.0 million for fiscal year 1991 base closure cleanup. The SASC noted that these additional funds should be used only when cleanup and restoration under the DoD risk based priority system were not consistent with the facility disposal schedule, and only if the Secretary of Defense certified that expedited cleanup and restoration would not adversely affect cleanup and restoration activities at sites with a higher priority under the DoD risk based system. [Ref. 53]

The Armed Services Conference Committee concurred with the HASC's recommendation of $100.0 million for base closure environmental restoration funding for fiscal year 1991. The conferees noted that this addition to the BCA was to be the exclusive source of funding for these bases and that whenever possible, the concept of setting priorities to expedite cleanup at the most seriously contaminated bases should be continued. [Ref. 67]

The Authorization conferees also established a Treasury account known as the "Department of Defense Base Closure Account 1990", to be administered by the Secretary of Defense as a single account. The funds deposited into this account included:

1. Those funds authorized for and appropriated to the account;

2. Any funds that the Secretary of Defense may, subject to approval in an Appropriation Act, transfer to the account

from funds appropriated to the Department of Defense for any purpose; and

3. Proceeds received from the transfer or disposal of any property at a military installation closed or realigned.... [Ref. 67]

Additionally, the Authorization conferees agreed to a HASC recommendation that would have created a model base closure program at two closing installations. This program was intended to improve the efficiency and effectiveness of the base closure environmental program. This would be accomplished at the first installation through restoration contractor indemnification of the federal government against future legal penalties. The contractor at the second base would continue to conform to prevailing contractor practices. [Ref. 67]

The MILCON Appropriations Committees refrained from further developing base closure cleanup policy during their deliberations on the fiscal year 1991 Base Closure Account request. Each Committee did, however, ensure that the BCA was fully funded for fiscal year 1991.

The House MILCON Appropriations Committee recommended a total of $998.1 million for the fiscal year 1991 BCA, $81.6 million of which was specifically earmarked for base closure cleanup. This is in marked contrast to the Senate MILCON Appropriations Committee which refused to fund the BCA beyond its request of $916.5 million. Furthermore, the Senate MILCON

Appropriations Committee failed to earmark any of the BCA funding for environmental restoration. [Refs. 80 and 81]

The MILCON Appropriations Conference Committee parallelled the recommended funding level and earmark set by the Authorization conferees. The MILCON Appropriations conferees agreed to earmark $100.0 million of its $1016.5 million recommendation for environmental restoration. The MILCON Appropriations conferees noted that the $100.0 million should not be considered the sole source of funding for environmental restoration, since authority existed to utilize receipts from funds deposited in the Base Closure Account from land sales. [Ref. 82]

The $100.0 million for environmental restoration would prove to be insufficient to meet the base closure cleanup requirement for fiscal year 1991. The fiscal year 1991 estimate for base closure environmental costs was subsequently determined to be $251.0 million [Ref. 76].

3. Fiscal Year 1992 Funding

In its presentation of the fiscal year 1992 Base Closure Account, DoD divided its request into two distinct accounts: "Base Realignment and Closure, Part I" (BRAC, Part I), also known as "Base Realignment and Closure, 1988", and "Base Realignment and Closure, Part II" (BRAC, Part II), also known as "Base Realignment and Closure, 1991". These account titles reflected the desire by the Congress to more

closely monitor the base closure funding of the bases selected in 1988 and those bases recommended for closure in 1990 but finalized in 1991. As a consequence, from fiscal year 1992 onward, the Congress addressed two distinct and related base closure accounts.

The House Armed Services Committee's markup of the fiscal year 1992 Defense Authorization bill recommended full funding of the BRAC, Part I's $633.6 million request and BRAC, Part II's request for $100.0 million. In addition, the HASC increased the BRAC, Part I request by $25.0 million for a total recommendation of $658.6 million. [Ref. 52]

Of significant note is that DoD's $100.0 million BRAC, Part II request was initiated prior to the submission of a finalized BRAC, Part II list of closing or realigning bases and the HASC chose to fully fund it anyway.

The Senate Armed Services Committee also added additional funding to the BRAC, Part I request. Along with its recommendation for $674.6 million for fiscal year 1992, the SASC earmarked its $41.0 million increase for the full funding of environmental restoration expenses associated with the installations on the 1988 base realignment and closure list. [Ref. 20]

In its markup of the $100.0 million BRAC, Part II fiscal year 1992 request, the SASC provided an additional $197.0 million, for a new total of $297.0 million. The SASC cited the need to fully fund the environmental restoration

expenses of the bases which had been recommended for closure by the 1991 Defense Base Closure and Realignment Commission. [Ref. 20]

These actions were supported by the Authorization Conference Committee during its deliberations on the fiscal year 1992 Defense Authorization bill. The conferees concurred with the SASC's $674.6 million recommendation for BRAC, Part I as well as the $297.0 million for BRAC, Part II. Furthermore, the BRAC, Part I and BRAC, Part II environmental restoration earmarks of $41.0 million and $197.0 million, respectively, were endorsed by the conferees. [Ref. 73]

From a policy viewpoint, the Authorization conferees noted the exclusive nature of the Base Closure Account regarding base closure restoration funding. However, the conferees indicated that the cleanup activities at closing bases were part of the DERP and should be managed as part of that program even if the DERA funding mechanism would not be used as it typically would be for DERP projects. [Ref. 73]

A related issue involved the Defense Authorization and Appropriations Conference Committees' concurrence with a Senate proposal which provided a $69.0 million transfer from the fiscal year 1992 ER, D Appropriation to the Base Realignment and Closure Account, Part II. This figure was equal to the amount DoD had set aside for cleanup of active bases that later appeared on final the 1991 base closure list. [Refs. 52 and 60]

The House MILCON Appropriations Committee also fully funded the fiscal year BRAC, Part I and BRAC, Part II requests. Furthermore, the House MILCON Appropriations Committee noted that the BRAC, Part I request of $633.6 million included programming of $175.8 million for base closure environmental cleanup. This figure was seen as insufficient by the Committee and as a consequence, a funding floor of $200.8 million was recommended by the Committee for BRAC, Part I environmental restoration. [Ref. 83]

Similarly, the House MILCON Appropriations Committee recommended providing the full amount of the BRAC, Part II request of $100.0 million for fiscal year 1992. The Committee noted that most of these funds would be utilized for site surveys, planning, and design of environmental restoration projects. However, the Committee expressed the desire that some portion of the $100.0 million would go to actual site cleanup. [Ref. 83]

Subsequently, the Senate MILCON Appropriations Committee parallelled the SASC's markup of the BRAC, Part I and BRAC, Part II fiscal year 1992 requests. The Senate MILCON Appropriations Committee recommended $674.6 million for BRAC, Part I while establishing a base closure environmental cleanup funding floor of $241.8 million. Similarly, the Senate fully funded the BRAC, Part II request for $100.0 million and recommended an additional $197.0 million specifically for environmental cleanup. [Refs. 84 and 85]

The MILCON Appropriations Conference Committee concurred with the Senate's recommendation for the BRAC, Part I funding level of $674.6 million and the House's $100.0 million proposal for BRAC, Part II. The conferees settled halfway between the House and Senate BRAC, Part I environmental funding floor proposals of $200.8 million and $241.8 million, respectively. The conferees' recommended environmental restoration funding floor of $220.0 million was $44.2 million above what was programmed by DoD for this effort. [Ref. 85]

Likewise, the MILCON Appropriations conferees recommended $100.0 million for site surveys, planning, design, and environmental cleanup of the BRAC, Part II installations. The Conference Report language limited funds to these areas until such time as DoD provided the Congress a five year program to execute the Base Realignment and Closure, Part II plan including justification for the fiscal year 1992 funding. [Ref. 85]

These environmental funding floors and earmarks also proved to be insufficient to meet the needs of bases selected in 1988 and 1991 for closure or realignment. The Defense Department requested $162.7 million in fiscal year 1992 supplemental appropriations for BRAC, Part II. The House and Senate recommended full and unaltered funding to support the insufficient funding of environmental restoration at the bases on the 1991 closure list. This revised the fiscal year 1992

environmental funding estimate for 1991 base closures to $262.7 million. The estimate for 1988 base closures was $256.0 million. [Refs. 21, 22 and 76]

4. **Fiscal Year 1993 Funding**

The House Armed Services Committee's markup of the fiscal year 1993 Defense Authorization bill provided full funding for the BRAC, Part I and BRAC, Part II funding requests. The BRAC, Part I request of $440.7 million was approved without an environmental restoration earmark or funding floor. Similarly, the $1.7436 billion BRAC, Part II recommendation contained no environmental earmarks or funding floors. [Ref. 63]

Likewise, the Senate Armed Services Committee's fiscal year 1993 Defense Authorization bill recommended full funding without environmental funding floors or earmarks for the BRAC, Part I and BRAC, Part II requests. The SASC's recommendation provided $440.7 million for BRAC, Part I and $1.7436 billion for BRAC, Part II [Ref. 69].

The Authorization Conference Committee also recommended full funding of the fiscal year 1993 BRAC, Part I and BRAC, Part II requests [Ref. 23]. The conferees did not earmark or otherwise designate funds specifically for base closure environmental restoration.

The House MILCON Appropriations Committee continued its practice of setting environmental funding floors as it

marked up the fiscal year 1993 MILCON Appropriations bill. The Committee recommended $415.7 million for BRAC, Part I, a reduction of $25.0 million from the requested level. The environmental restoration portion of this recommendation was set at $134.6 million. [Ref. 86]

The House MILCON Appropriations Committee also recommended a reduction to the $1.7436 billion BRAC, Part II request. This reduction totalled $125.0 million, to a final recommended level of $1.6186 billion. The Committee provided $308.9 million of this amount for base closure environmental restoration. [Ref. 86]

The Senate MILCON Appropriations Committee recommended full funding of the fiscal year 1993 BRAC, Part I and BRAC, Part II requests, providing $440.7 million and $1.7436 billion, respectively [Ref. 87]. The Committee did not set environmental cleanup earmarks or funding floors for either BRAC Account for fiscal year 1993.

However, the Senate MILCON Appropriations Committee indicated that it believed DoD was underestimating the cost of closing bases, particularly the costs associated with environmental cleanup activities. The Committee noted that DoD's failure to accurately forecast the cost and savings associated with base closures and realignments would further erode the financial resources available in future MILCON Appropriations bills for investments under the regular military construction program. [Ref. 87]

Table 9 provides the identifiable base realignment and closure environmental cost or budget figures from fiscal year 1990 to 1993. Fiscal year 1992 data includes the $162.7 million supplemental appropriation for BRAC, Part II [Ref. 88]. The fiscal year 1993 figures reflect the MILCON Appropriations Conference Committee's recommendation of $134.6 million and $308.9 million for BRAC Part I and BRAC, Part II, respectively [Ref. 89].

TABLE 9

BASE REALIGNMENT AND CLOSURE, PARTS I AND II
ENVIRONMENTAL FUNDING, FISCAL YEARS 1990-1993

(Dollars in Millions)

	1990	1991	1992	1993	Total
1988 Base Closure Costs	38.00	251.00	256.00	134.60	679.60
1991 Base Closure Costs	0.00	0.00	262.70	308.90	571.60
Total	38.00	251.00	518.70	443.50	1,251.20

[Refs. 76, 88, and 89]

Originally, base closure environmental restoration costs were not even considered by the BRAC Commission. By fiscal year 1993, fully one-fifth of the MILCON Base Realignment and Closure Appropriations were designated for environmental restoration. In the interim, the Congress struggled to develop an appropriate funding mechanism for base closure costs.

The Congress experimented with base closure environmental restoration earmarks in fiscal years 1991 and 1993. In between, the congressional markup of the fiscal year 1992 Base Realignment and Closure Account requests utilized funding floors to achieve the Congress' goal of adequately funding environmental restoration at closing installations.

This congressional goal took on new meaning when the fiscal year 1993 BRAC, Part II request was a full seventeen times larger than the previous year's funding level and the environmental restoration earmark grew by a factor of three over the same period. These growth patterns are remarkable in view of the defense drawdown underway and the resulting pressure this has placed on the Congress to adequately fund programs while maintaining fiscal restraint.

VI. CONCLUSIONS

A. OVERVIEW

Even though the defense budget experienced a brief but dramatic rise in the early 1980s, funding of defense environmental activities remained a relatively minor aspect of the defense budget during this period. At the end of 1985, following this period of rapid defense growth, the focus on defense environmental restoration efforts began to intensify.

This initiative continued through the remainder of the 1980s and early 1990s, and took two forms. Both in terms of allocated resources and the extent of congressional oversight, defense environmental funding has become an increasingly important program within the total defense budget. Funding of the defense environmental restoration budget has taken on new meaning as Congress and DoD shift priorities for defense in the post-Cold War era.

Funding of DoD's environmental efforts reflects relatively moderate growth between fiscal year 1984 and 1990. The three appropriations accounts used to fund these efforts over the past decade are shown in Figure 3.

The Environmental Restoration, Defense Appropriation which funds the DERA, grew from $150.0 million in fiscal year 1984 to $601.1 million by fiscal year 1990, an increase of 400

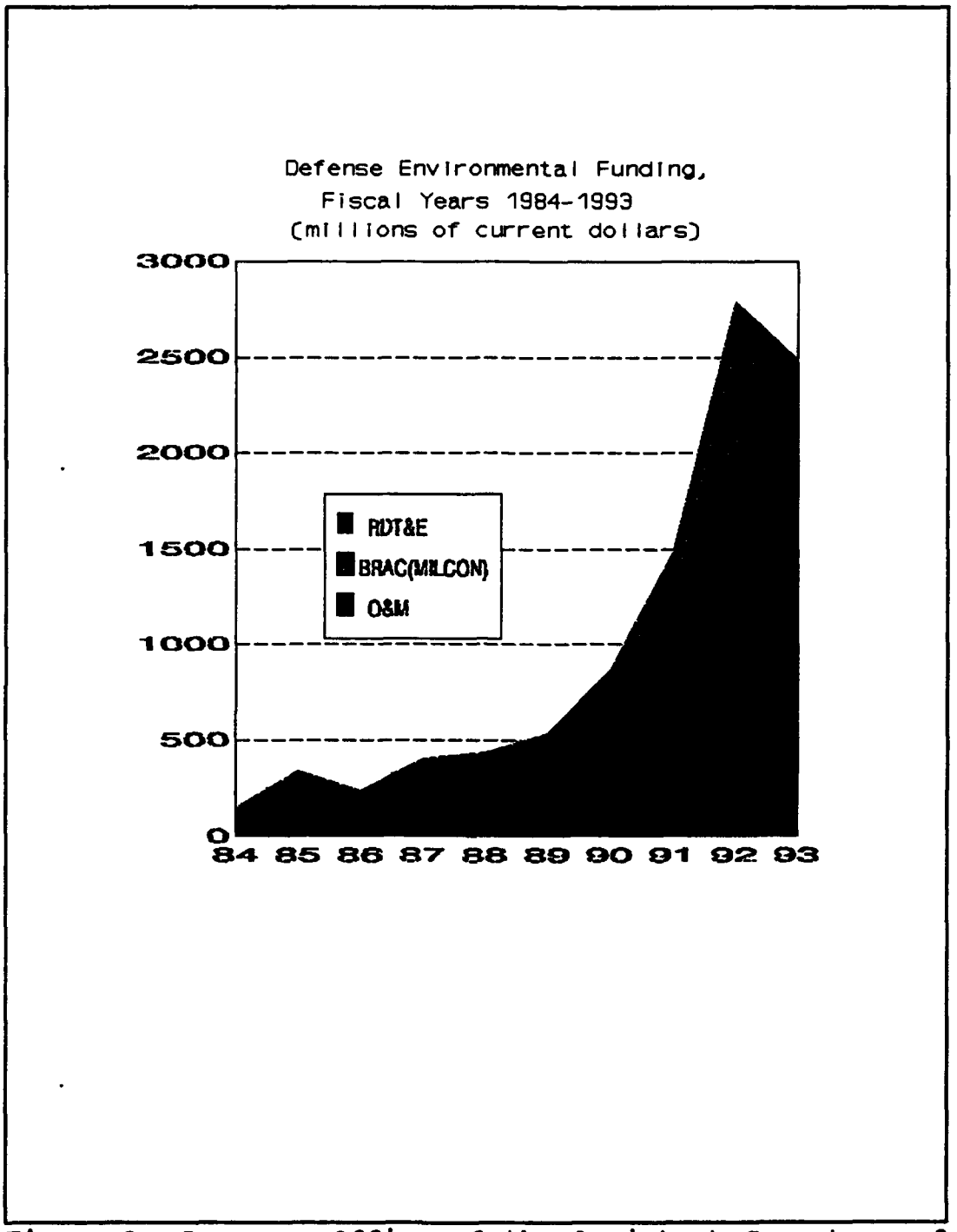

Figure 3 Sources: Office of the Assistant Secretary of Defense (Comptroller), Congressional Action on Fiscal Years 1984-1993 Appropriation Requests and Congressional Record, Vol. 138, No. 128, H8782, September 18, 1992.

percent. Total DERA funding over this seven year period exceeded $2.7 billion. Throughout this period, a majority of DERA funding was used to conduct preliminary assessments and site inspections of potential contamination sites. These assessment efforts took a great deal of time and the perception in Congress was that DoD was taking an unusually long time to identify sites and initiate cleanup action.

As a consequence, the three year period which followed, fiscal years 1991 to 1993, witnessed a fundamental shift in congressional fiscal and regulatory oversight of DoD environmental efforts. Congress viewed this period as an opportunity for DoD to focus its efforts inward and begin to address its nearly 50 years of environmental neglect. The Congress supported this new focus with DERA funding totalling $4.207 billion during this three year period.

The focus on cleanup of U. S. defense industrial plants, facilities, and bases used during the Cold War was followed by the base realignment and closure initiatives beginning in fiscal year 1990. From an initial funding level of $38.0 million for fiscal year 1990, base realignment and closure funding increased by a factor of four the following year. With the funding level of $155.0 million for fiscal year 1991 nearly tripling to $443.5 million for fiscal year 1993, Base Realignment and Closure, Parts I and II received environmental funding exceeding $1.25 billion over this four year period.

The Defense Department's downsizing also was exhibited in the way in which the Congress funded the RDT&E environmental accounts. As the Congress sought to expedite cleanup action at active, closing, and formerly used defense installations, it looked to environmental research and development as a means of significantly reducing DoD's long-range cleanup costs with short-term infusions of relatively large amounts of RDT&E funding.

From a fiscal year 1990 RDT&E environmental funding level of $28.642 million, the Congress escalated funding to $184.99 million for fiscal year 1991. Funding of defense environmental Research, Development and Demonstration efforts in the three year period from fiscal year 1991 to 1993, was approximately $515 million.

In addition to designating a majority of these RDT&E funds for the Strategic Environmental Research and Development Program, earmarks were used to designate portions of both the services' RDT&E and O&M appropriations as well as the DERA and BRAC accounts for environmental initiatives in the states and districts of key committee members. This is another measure of the increased attention given to defense environmental activities by the Congress. The Department of Defense can anticipate that the earmarking of defense environmental funding will continue, insofar as environmental funding is seen by taxpayers as a relatively beneficial use of defense resources.

No one committee has been especially active in its use of the earmark. Instead, congressional committee interest in defense environmental efforts has been much more focused on allowing DoD's worst first priority system to be exercised effectively and efficiently.

Another measure of the heightened congressional interest in defense environmental activities is the House Armed Services Committee's establishment of a special panel to oversee these efforts. The Environmental Restoration Panel, created in 1985, has taken dramatic steps in cleanup and compliance oversight. This Committee can be expected to maintain its keen interest in the implementation of the Defense Environmental Restoration Program through its continued close oversight of the Defense Environmental Restoration Account.

Similarly, the House MILCON Appropriations Committee's use of funding floors for the BRAC environmental accounts signals continued congressional interest in environmental issues affecting closing and realigning installations. This Committee, along with its Senate counterpart, has succeeded in making the BRAC accounts operate functionally like the O&M appropriation's DERA account, while maintaining separate funding and oversight of the two base closure accounts.

The Senate Armed Services Committee has taken the lead in funding RDT&E activities which support defense environmental restoration. The Committee's support for the Strategic

Environmental Research and Development Program can be expected to remain strong.

The Senate Appropriations Committee's establishment of the DERA gives evidence of continued strong support for Installation Restoration Program efforts and funding. This support will likely be necessary as the DoD budget continues to shrink and pressure to complete restoration efforts begun in the 1980s continues to constrain defense budget resources in the 1990s and beyond.

Estimates of the total funding required to complete restoration efforts at the thousands of contaminated DoD sites vary. In 1988 congressional testimony, DoD estimated the total cost of the IRP portion of the DERP at between $11 billion and $14 billion [Ref. 47]. By February 1992, this estimate had risen to $24.5 billion with completion in fiscal year 2012 [Ref. 90].

Likewise, total cleanup expenses have already grown beyond DoD's original estimates for bases on the 1988 closure list. The Defense Department now calculates that cleanup of BRAC 88 installations will cost about $900 million during the period between fiscal year 1990 and 1995, an increase of about 50 percent in real terms over the DoD budget estimate submitted in February 1991. Costs at some BRAC 88 bases have already increased substantially above initial estimates. Based on experience from civilian cleanup projects, and unless plans and requirements change, it would be prudent to assume that

there will be increases in the total funding required for the BRAC 88 sites. [Ref. 91]

The estimate for BRAC 90 base closures is closely aligned with the current BRAC 88 funding estimate. For the six year period from fiscal year 1992 to fiscal year 1997, cleanup costs for BRAC 90 installations are estimated at nearly $980 million [Ref. 76].

Still to be addressed by the Congress and DoD are the cleanup costs associated with overseas base closures. According to one estimate, the cost of soil and groundwater contamination cleanup at Army installations in Germany alone will exceed $3.0 billion [Ref. 92].

On an annual basis, estimates indicate that total DoD environmental spending will grow from an estimated $3 billion in fiscal year 1991 to $12 billion in fiscal year 1995 [Ref. 90]. With several major weapons systems also coming on line during this period, the budgetary pressures to slip environmental restoration schedules during this period will continue to be great.

These problems may be compounded by a new round of base closures and realignments set for early 1993. If the scope of this next set of closures and realignments is equal to or greater than the 1988 and 1990 initiatives, the Congress and DoD will face some very difficult choices in the near future. Without considering the cost of the cleanup of the 1993 bases,

estimates place the remaining cost of cleanup of 1988 and 1991 bases at approximately $637 million [Ref. 76].

Additional base closures mean further shifts in environmental restoration appropriation oversight from the Defense Appropriations Subcommittee to the MILCON Appropriations Subcommittee. It remains to be seen whether Defense Appropriations Committee members will be willing to give up oversight of a growing budget for defense environmental cleanup activities. What is certain, however, is that the increasing number of closing and realigning bases, both in the continental U.S. and overseas, will absorb increasing shares of the MILCON budget for environmental cleanup. This means that less funding will be available for investment construction.

The on-going defense environmental restoration efforts at DoD/DoE nuclear production facilities, activities which are outside the scope of this investigation, will place additional pressure on the Congress and DoD. This area of environmental restoration has grown from $3.68 billion in fiscal year 1992 to $4.8 billion in fiscal year 1993, a 30.4 percent increase in just one year. [Refs. 23 and 73]

Therefore, not only has congressional oversight and funding of defense environmental activities increased in intensity and dollars appropriated, so too has it increased in the level of its complexity. This appears to be a natural

progression of the oversight and funding processes associated with defense environmental restoration.

Realizing that DoD would be slow to address the commitments placed upon it by extensive environmental legislation without sufficient funding and oversight, Congress centralized defense environmental restoration funding. This single account became the focus of early defense environmental oversight. It left the services with the responsibility of addressing their service specific and currently generated hazardous waste problems from within their O&M budgets.

Consequently, the Congress provided increased levels of service O&M funding, but earmarked it for service specific and multi-service environmental issues. This dual approach to O&M funding, using both service accounts and the centralized restoration account, has continued in the 1990s.

Similarly, in an effort to control costs associated with an increasing centralized restoration account, the Congress began funding a growing list of environmental research and development activities. This use of environmental research and development appropriations represents a distinct shift away from the use of O&M funds to solve operational environmental problems. These funds are intended to develop information relevant to both existing environmental problems, but also to identify the full range of defense environmental issues and potential solutions. This environmental research

and development effort will assist in guiding future DoD environmental initiatives of all kinds.

It clearly applies to the increasingly complex issue of base realignment and closure. With the possibility of several hundred military installations closing or realigning by the end of the century, Congress will be pressured to adequately fund their environmental restoration. This environmental research will afford DoD and Congress the opportunity to minimize funding risk while maximizing the restoration activity at each of the contaminated sites.

B. AREAS FOR FURTHER RESEARCH

Congressional oversight of defense environmental efforts can be expected to continue for quite some time. Public support for environmental restoration at defense installations, combined with congressional interest, places DoD's actions and accountability in this regard at the forefront of future defense policy. Likewise, the defense environmental restoration research and development, and base closure processes will remain intertwined.

Consequently, further research may be considered in the following areas:

1. The impact of contractor liability, surety bonds, and indemnification of the defense environmental restoration process, should be examined.

2. U.S. environmental cleanup activities and responsibilities at overseas U.S. military installations, should be reviewed.

3. A cost/benefit analysis of base closure cleanup costs should be conducted to determine whether savings were actually achieved once environmental cleanup costs were included.

4. The action taken by the services and OSD in response to congressional oversight of defense environmental restoration should be studied.

C. SUMMARY

Clearly, the Congress and DoD have some very difficult choices ahead. The continuing base closure process, reductions in DoD manpower and associated in-house environmental expertise, and resolution of legal issues related to environmental restoration and compliance are just a few of the problems which Congress and DoD must face.

DoD's ability to address these issues efficiently and effectively will shape congressional oversight in this area. If DoD is able to overcome the concurrent problems of downsizing and constricting budget authority while maintaining environmental stewardship, it should be well on its way to successfully correcting its legacy of environmental neglect and winning the environmental battle it now faces.

APPENDIX A

Acronyms

AEPI	Army Environmental Policy Institute
AFB	Air Force Base
AMC	Army Materiel Command
BCA	Base Closure Account
BDDR	Building Demolition and Debris Removal
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CBO	Congressional Budget Office
CEQ	Council on Environmental Quality
CFC	Chloroflourocarbon
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIERA	Coalition for International Environmental Research and Assistance
CIESIN	Consortium for International Earth Science Information Network
CWA	Clean Water Act
DARPA	Defense Advanced Research Projects Agency
DASD(E)	Deputy Assistant Secretary of Defense for Environment
DDR&E	Director, Defense Research and Engineering
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program

DoD	Department of Defense
DoE	Department of Energy
EAP	expenditure availability period
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ER,D	Environmental Restoration, Defense
FS	Feasibility Study
FUDS	formerly used defense sites
HAC	House Appropriations Committee
HASC	House Armed Services Committee
HSWA	Hazardous and Solid Waste Amendments Act
HRS	Hazardous Ranking System
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
MILCON	Military Construction
NASA	National Aeronautics and Space Administration
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDCEE	National Defense Center for Environmental Excellence
NDEC	National Defense Environmental Corporation
NEPA	National Environment Policy Act
NPL	National Priorities List
NTC	Naval Training Center
OAP	obligational availability period
O&M	Operations and Maintenance

OHW	Other Hazardous Waste Operations
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Inspection
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD&D	Research, Development, and Demonstration
RD/RA	Remedial Design/Remedial Action
RDT&E	Research, Development, Test and Evaluation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SAC	Senate Appropriations Committee
SARA	Superfund Amendments and Reauthorization Act
SASC	Senate Armed Services Committee
SDWA	Safe Drinking Water Act
SERDC	Strategic Environmental Research and Development Council
SERDP	Strategic Environmental Research and Development Program
SI	Site Inspection
SWDA	Solid Waste Disposal Act
SWMU	Solid Waste Management Unit
TSCA	Toxic Substance Control Act

APPENDIX B

Other Pertinent Environmental Laws

Clean Air Act (CAA) of 1955, as amended through 1983 - (codified in 42 U. S. Code 7401-7642; first enacted July, 1955, at 69 Statute 485; first major amendments were enacted as Public Law 91-604, December 1970; completely revised August 1977; amended 1978, 1980, 1981, and 1983.) The CAA requires the prevention or control and abatement of air pollution from stationary and mobile sources. Specifically, the CAA requires the EPA to establish binding National Ambient Air Quality Standards (NAAQS). Air quality standards are met by states through plans known as State Implementation Plans (SIPs). All DoD installations are subject to federal, state, and local air pollution control requirements. Presidential exemptions are authorized if a determination is made that it is "in the paramount interest of the United States to do so."

Clean Water Act (CWA) of 1972, as amended through 1987 - (Enacted October 18, 1972, as Public Law 92-500; codified in 33 U. S. Code 1251-1376, amended annually from 1973 through 1983; most recently amended in February 1987, as the Water Quality Control Act of 1987.) The CWA authorizes states to establish ambient water quality standards and makes it illegal to discharge pollutants from a point source into U. S. waters without a permit. Point sources include DoD industrial facilities and sewage treatment plants. The CWA also requires the reporting and cleanup of oil or hazardous substance spills in waterways. Furthermore, the Act allows for citizen lawsuits against federal facilities for failing to obtain the necessary permits, violating the terms of a permit, or violating discharge standards or limits. Like the CAA, the CWA also allows for presidential exemptions for DoD installations.

Emergency Planning and Community Right-to-Know Act of 1986 - (Enacted October 1986 as Public Law 99-499 in 42 U. S. Code 11001-11005.) Also known as SARA Title III, this Act was intended to encourage and support state and local level emergency planning efforts regarding releases of extremely hazardous substances.

Endangered Species Act of 1973, as amended - This Act requires that actions by Federal agencies, including DoD activities, not jeopardize the existence of threatened or endangered species. Additionally, the Act prohibits the destruction of or adverse impact to critical habitats of these species.

Safe Drinking Water Act (SDWA) of 1974 - (Enacted December, 1974 in 42 U. S. Code 300f and amended in 1976, 1977, 1986, and 1988.) The SDWA regulates drinking water quality for pollutants that may have an adverse effect on human health or negatively affect the aesthetic quality of drinking water. Protection of underground sources of water is enhanced by the SDWA's regulation of the underground injection of wastes. Amendments to the SDWA establish a mandatory schedule for the establishment of primary drinking water regulations governing eighty-three contaminants.

Sikes Act - This Act requires military installations to manage their natural resources and to provide public use access to these natural resources. This public use access should be consistent with each installation's missions.

Toxic Substance Control Act (TSCA) of 1976 - (Enacted September 1976 in 15 U. S. Code 2601 and reauthorized in 1981.) The TSCA authorizes the EPA to regulate new and existing chemical substances and mixtures. The EPA is authorized to collect information on and regulate toxic chemicals at any stage from manufacture through disposal. The TSCA requires testing of Chemicals entering the environment and regulates their release as necessary. TSCA authority may not be delegated to states.

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